DOCUMENT RESUME

ED 147 549 08 CE 013 849

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TITLE An Experimental Program in Vocational Education at the Elementary School Level. Final Report.
INSTITUTION Alabama Univ., Tuscaloosa. Coll. of Education.
SPONS AGENCY Bureau of Occupational and Adult Education (DHEW/OE), Washington, D.C.
BUREAU NO 498AH50186
PUB DATE Nov 76
GRANT G00-75-00390
NOTE 131p.

EDRS PRICE MF-$0.83 HC-$7.35 Plus Postage.
DESCRIPTORS *Academic Achievement; Career Awareness; Educational Innovation; Elementary Education; *Elementary School Students; Elementary School Teachers; Grade 2; Grade 4; Grade 6; *Human Development; *Program Effectiveness; Program Evaluation; *Self Concept; Student Attitudes; Student Behavior; Summative Evaluation; Teacher Attitudes; Teacher Behavior; Teaching Styles; *Vocational Education
IDENTIFIERS Alabama

ABSTRACT

A one-year study evaluated the Human Development Program, or "Magic Circle," a project (conducted in the Tuscaloosa County (Alabama) School District) designed to explore student concerns and ideas in the areas of awareness, mastery, and social interaction and consisting of daily twenty-minute classroom meetings of teacher and pupils in a circular arrangement. The evaluation was designed to determine "Magic Circle's" effectiveness in the following areas: its ability to bring about significant changes in self-concepts and classroom achievement of elementary students and in teacher behavior; and as a means for introducing information about jobs and the world of work into ongoing classroom activities. Second, fourth, and sixth grade pupils in two schools participated in the study; one school provided treatment subjects, the other served as a control. Treatment subjects experienced daily "Magic Circle" sessions using prescribed curriculums. The control group experienced no such involvement. Pre- and postmeasures of self-concept, academic achievement, and locus of perceived control were obtained, along with periodic measures of classroom behavior and "Magic Circle" behavior. Results showed some students in the experimental group made significantly different gains in some areas, but the control group showed significantly different gains in equally relevant areas. Teacher behavior did not differ significantly in Circle activities and there was no indication that classroom behavior changed substantially from participating in the project. (Author/BL)

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ED147549

Final Report

Project No. 498AH50186
Grant No. G00-75-00390

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AN EXPERIMENTAL PROGRAM IN VOCATIONAL EDUCATION AT THE ELEMENTARY SCHOOL LEVEL

November 1976

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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ABSTRACT

This study evaluated effects of the Human Development Program "Magic Circle" upon the attitudes and behaviors of elementary students and the classroom style of teachers using the program. During the 1975-76 academic year, intact second, fourth, and sixth grades of two Tuscaloosa County, Alabama schools participated in the study; one school provide treatment subjects, the other served as a control.

Teachers from the experimental school received workshop training prior to initiating the program and were provided with assistance by project consultants throughout the school year. Treatment subjects experienced daily "Magic Circle" sessions using prescribed curricula. The control group experienced no such involvement. Pre- and post-measures using the Self Observation Scales (self-concept), the California Achievement Tests (academic achievement), and the Intellectual-Achievement Responsibility Questionaire (locus of perceived control) were obtained. In addition, Interaction Analysis (a measure of classroom behavior) was made of classroom and Magic Circle behavior periodically throughout the year.

Results of the research were equivocal. Although some students in the experimental group showed significantly different gains in some areas, the control group showed significantly different gains in equally relevant areas. Teacher behavior did not differ significantly in Circle activities and there was no indication that classroom behavior changed substantially from participating in the project. The Human Development Program seemingly failed in this study to live up to the claims made for it by its authors.

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Dr. Robert E. Griffin

The University of Alabama

University, Alabama

November 1976

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Introduction

During the past several decades, the increased efficiency of our technological society has been paralleled by an awareness of the psychological and emotional impact of that technology upon the individual who makes the entire process occur: the working man. In place of the belief that a satisfied worker evolves from appropriate placement of "a round peg in a round hole", we have moved to a realization that for most people, the selection of a career is complex and life-long process. In addition, the motivations and goals behind the decision to pursue a particular career are highly complex and go well beyond the simple desire to earn a good salary or "live the good life." The extent to which an individual experiences success in his chosen work is influenced by the satisfaction he obtains from the actual performance of his job tasks, the extent to which he relates positively to his fellow workers, the degree of control he maintains over his own life/work and a host of other subtle factors may be present.

If the assumption is made that the choice of a satisfying and productive career is a life-long experience, it is logical to assume that increased emphasis must be placed upon the development of positive attitudes towards the world of work, particularly during the formative years of life. Furthermore, if an individual's vocation is indeed an extension of his personality and unique life style, additional efforts should be expanded to insure that each child develops not only an orderly and positive attitude toward his school experiences and the world of work, but a clear and precise perception of himself as a legitimate and necessary part of these two worlds.

A frequent criticism of the public schools in America concerns curricular offerings which seemingly emphasize cognitive and motor processes at the expense of the emotional areas of life. Such a process, according to the

critics, creates a society which is long on technological efficiency but which falls short in the area of emotional health and well-being. Such a system creates children who have the capacity to function effectively, but who experience severe problems in dealing with other people, developing a positive concept of self, or performing to the optimal level of their capability. These problems of childhood continue on into mature adulthood and manifest themselves in a wide range of maladaptive behaviors.

A number of attempts have been made to alleviate this situation by providing programs for the school systems which incorporate affective or psychological education into the ongoing activities of the classroom. One such program which appears to offer a great deal of promise in this regard is the Human Development Program, or "Magic Circle" as it is frequently called. This program consists of daily twenty-minute classroom meetings of teacher and pupils in a circular arrangement. A topic or "cue" is introduced to the group by the teacher who then sees to it that each child is given the opportunity (but not compelled) to respond to the concern under discussion. Perhaps more importantly, the teacher makes certain that each child is listened patiently to by others, praises each child for his contribution regardless of its quality, and does her best to foster and preserve an atmosphere of warmth, tolerance, and honesty throughout the process.

The Magic Circle explores the concerns and ideas of children in three distinct areas: Awareness, Mastery, and Social Interaction. Cues have been developed systematically and at all levels from pre-school through sixth grade and deal with such topics as "Something I did which made someone else feel good" or "How I got what I wanted." By discussing these and similar topics, children are able to develop a better sense of their feelings and learn to "own" their feelings, recognize the abilities which they and

others possess which are not necessarily "school" abilities, and realize the capacities that every individual has potentially to help other people feel good or to feel bad, depending upon the manner in which they are employed.

Despite the many claims made by the authors of the Human Development Program, very little research has been designed which in fact measures the capacity of the Magic Circle to effect change in the students who participate or the teachers who employ these techniques. Nor is there any indication that the method or technique of the Magic Circle is generalizable to other elements of the child's development other than those discussed by the authors.

In view of the limited research efforts that have involved the use of the Human Development Program, a study was designed in an attempt to develop answers to the following pertinent questions:

1. To what extent can an affective education program such as the Human Development Program's "Magic Circle" bring about significant changes in the measured self-concepts of selected elementary school children?
2. To what degree can the "Magic Circle" technique be employed as a means for introducing information about jobs and the world of work into the ongoing classroom activities in selected elementary classrooms?

In addition to the vocationally-related aspects of the study, several other significant questions were considered as a part of the program and include:

1. To what extent does participation in the Human Development Program bring about positive changes in achievement within the classroom?

2. To what extent does participation in the Human Development Program bring about change in pupil attitudes toward their school experiences?
3. To what extent does participation in the Human Development Program bring about significant change in the teaching behavior of the teachers who use the program within their classrooms?

Methods and Procedures

During the spring of 1975, the Director of the project and officials of the Tuscaloosa County School District met to discuss the merits of the study and to determine which two elementary schools within the county might be best served by the proposed project. Two schools were chosen which were considered to be fairly representative of the schools in the county according to racial balance, both having a population which was approximately one-half white students and one-half black students. The elementary school chosen to serve as a control group was considered to be essentially the same in composition as the two experimental schools.

Teachers from the second, fourth, and sixth grades from each school were contacted and asked to participate in the study, and all agreed to do so. Participation was placed on a strictly voluntary basis in order that none of the teachers felt coerced in any manner to become a part of the project.

In that neither prospective teachers nor participants had been exposed to the Human Development Program prior to the initiation of this project, a plan of comprehensive training and consultation was implemented in order to promote a well articulated program. Consequently, teacher-facilitators

participated in a three day workshop during the week prior to the beginning of the 1975-76 school term, the training format of which consisted of alternate periods of didactic and experiential learning involving: (a) lecturettes on the theory, objectives, and methodology of affective education and the Human Development Program; (b) participation as a member of "Magic Circles"; (c) observation of a "Magic Circle" videotape featuring one of the program's authors conducting a session with elementary students; (d) participation as a facilitator of a "Magic Circle" with immediate videotape playback for demonstration and critique, and (e) discussion and problem solving focusing on implementation of the program in each of the six classrooms of the treatment school. In addition, each teacher was supplied a copy of Methods in Human Development: Magic Circle Theory Manual and an activity guide corresponding to the grade level taught.

Teachers initiated the program in their respective classrooms concurrent with pre-testing during the second week of the school year and continued on a daily basis beyond post-testing, which occurred three weeks prior to the end of the school year.

A project consultant visited each treatment classroom approximately once every eight school days throughout the project cycle to assist the teacher-facilitators in refining their skills and to sustain the program through guidance, support, and encouragement. To these ends a checklist was devised for use by the consultant during observation of circle sessions in order to provide a consistent, tangible means of reinforcement and stimulation. This checklist was designed to be no more than two pages in length, for duplication on the observe and reverse of a single sheet of paper, in order to permit unencumbered use. Criteria for inclusion of items

on the checklist were: (a) the exhibition of all of the skills at some point during an intact circle session would provide a minimum standard for a productive circle; (b) the teacher facilitator would not be penalized by requiring exhibition of a skill, the appearance of which would be so infrequent or under such special circumstances that its exhibition would seldom be opportune, and (c) skills would approximately equally contribute to circle productivity. A copy of the "Magic Circle Basic Skills Checklist" appears in Appendix A.

In addition to consultant critique, the teacher facilitators were periodically called upon to critique themselves by immediate videotape playback of the circle session. Teachers were also encouraged to share effective techniques, positive experiences, and suggestions among themselves, as well as with the consultant.

A final gauge of circle effectiveness, also intended to foster teacher program identity, was the keeping of a daily log by the teacher facilitators in which they recorded a brief reaction to each day's activity and rated the activity's effect on a four point scale. (Appendix B)

It was felt that, in general, teacher-facilitators conducted the program with a level of involvement which approximated program techniques required for minimal effectiveness in program articulation. It was concluded, therefore, that participation during the "Magic Circle" session was sufficient to the degree that it could be judged methodologically consistent with program specifications.

Since the authors of the Human Development Program suggest that participation by teachers in the Magic Circle brings about substantial changes in their classroom style, an assessment of the classroom behavior of each

teacher in the project was made at the beginning, at midyear, and at the end of the academic year. To accomplish this, two raters skilled in the use of interaction analysis were assigned to visit each classroom for six thirty-minute periods and to measure the teaching climate within these classrooms. A similar number of evaluations were made of Magic Circle sessions during approximately the same time intervals as the classroom evaluations, that is at the beginning, at mid-year, and at the end of the academic year.

Early in the school year and again at the end of the research period, students in the experimental and control groups were asked to respond in writing to a request that they imagine themselves to be projected into the future to a time when they are "grown up", and to describe the type of job at which they will be working at that time. (A copy of the instructions which were read to all groups can be found in Appendix C). The pre-testing was intended to measure of the level of vocational sophistication among the students in the sample. Following a number of Magic Circle acitivites spaced over a period of several months which incorporated a series of vocationally related cues into the routine of the program, the students were again requested to respond to a projection of themselves into future vocational roles. It was anticipated that significant change in understandings which occurred through exposure to the modified circle activities would be expressed in much more sophisticated responses of students on the post-test data.

Experience with the program indicated that the Magic Circle would indeed serve as an excellent vehicle for incorporating vocationally relevant ideas and concepts into the lives of elementary-age students. However, an unanticipated problem emerged which tended to raise questions about the measured

effectiveness of the technique in this particular instance. Several of the teachers (particularly those in the sixth grade classrooms) had introduced career information activities into the social studies portion of their classes during the time between the initial assessment of vocational projections and the end-of-year assessment. Hence, it became impossible to determine in any substantial degree whether the differences which might be found in student descriptions were the result of Magic Circle experiences or those in the social studies classes. Consequently, a decision was made to abandon this aspect of the research project and to concentrate more fully upon the other areas of concern.

The final treatment and control groups for the research project were composed of the intact second, fourth, and sixth grade populations of two rural Tuscaloosa County elementary schools, Englewood and Maxwell respectively, from predominantly low- and middle-socioeconomic locales. Two conditions for systematic exclusion of subjects from the research groups were set. First, because of the use of multivariate data analysis, those subjects for whom test data were incomplete were not included in the data bank. Second, in order to prevent data contamination, those subjects who moved from or into treatment or control groups during the program period were excluded. Therefore, data were analyzed only for those subjects who (a) were members of the research groups for the duration of the project and (b) for whom complete pre- and post-test results were available. Application of these criteria reduced the sample size by no more than seven subjects in any grade.

The treatment sample was composed of 50 second graders, 43 fourth graders, and 53 sixth graders, while the control sample consisted of 45 second graders,

32 fourth graders, and 40 sixth graders. Prior to their nomination as project participants, treatment and control schools were judged by Tuscaloosa County school officials to be comparable with regard to student population, faculty composition, and curricular content.

The initial project had included Myrtlewood Elementary School, a school similar in size and composition to the experimental and control schools. However, a variety of problems arose during the course of the school year which necessitated the exclusion of the data obtained at Myrtlewood School from the final evaluation procedure. Early in the year, one of the second grade teachers became pregnant, an event accompanied by both physical and emotional problems. This teacher missed a considerable amount of time from school and was essentially ineffectual for much of the time that she was at work. In addition to this, the two fourth grade teachers in the project consistently neglected the Magic Circle activities during the school day and only used the program when the visiting consultant was actually there observing them. One of the sixth grade teachers was also ill during a considerable potion of the year and failed to make consistent use of the Magic Circle within her classroom. The net effect of these unfortunate events was to render invalid virtually all of the data that might have been obtained had more desirable conditions existed within Myrtlewood School. Hence the decision was made to continue the efforts of the consultant to Myrtlewood School, but to eliminate the school as a part of the experimental project.

Although descriptive data other than sociological characteristics of sex and race are not available for the samples, characterization of the

groups with regard to these available demographers is felt to be of sufficient benefit in interpreting results of the study as to warrant inclusion. The percentage of male subjects per group ranged from a minimum of 40% in the sixth grade treatment group to a maximum of 58% in the fourth grade treatment group. The percentage of white subjects ranged from a minimum of 42% in the second and fourth grade treatment groups to a maximum of 87% in the fourth grade control group. The exact number of subjects by sex and race in each grade of the treatment and control samples is presented in Table 1.

Table 1

Research Subjects Characterized by Grade, Sex, and Race for Treatment and Control Groups

		Treatment			Control		
		White	Black	Total	White	Black	Total
Second Grade	Male	10	15	25	18	07	25
	Female	11	14	25	13	07	20
	Total	21	29	50	31	14	45
Fourth Grade	Male	10	15	25	13	01	14
	Female	08	10	18	15	03	18
	Total	18	25	43	28	04	32
Sixth Grade	Male	12	09	21	13	08	21
	Female	14	18	32	09	10	19
	Total	26	27	53	22	18	40

Hypotheses

In order to establish clearly the research aims of the project, formal study hypotheses were developed as follows:

Hypothesis I: Second Grade Subjects

No statistically significant differences exist between students who participated in the Human Development Program and students who did not participate in the program in:

1. Affect (self acceptance, self security, and social maturity).
2. Cognition (reading achievement and arithmetic achievement).
3. Confluence (school affiliation).

Hypothesis II: Fourth and Sixth Grade Subjects

No statistically significant differences exist between students who participated in the Human Development Program and students who did not participate in the program in:

1. Affect (self acceptance, self security, social maturity, and self confidence).
2. Cognition (reading achievement and arithmetic achievement).
3. Confluence (school affiliation, teacher affiliation, peer affiliation, and internal positive, internal negative, and total internal intellectual-achievement responsibility).

Hypothesis III: Teachers

No statistically significant differences exist between:

1. The pre- and post-ratings of teachers who participated in the project in regard to verbal behavior patterns within their respective classrooms.

2. The classroom teaching style and the Magic Circle teaching style of teachers participating in the project.

INSTRUMENTATION

In describing the general objectives of the Human Development Program, Ball (1974a, p. 3) listed eight goals, each of which logically relate, either directly or indirectly, to one or more of the dependent variables under study in this research. A statement of each of the objectives listed by Ball, accompanied by those study variables to which primary and/or secondary relationships are proposed, follows:

1. Improving each child's self-concept. Primary: Self-Acceptance, Self-Security, and Social Confidence.

2. Increasing the children's respect for others. Primary: Peer Affiliation and Teacher Affiliation. Secondary: Social Maturity and School Affiliation.

3. Improving their skills in interpersonal relationships. Primary: Social Maturity. Secondary: Social Confidence, Peer Affiliation, and Teacher Affiliation.

4. Understanding and becoming more aware of their own emotions and the emotions of other people. Primary: Self-Acceptance, Self-Security, Social Maturity, and Social Confidence. Secondary: Peer Affiliation and Teacher Affiliation.

5. Developing the understanding that everyone experienced all of the emotions, but in their own unique way. Primary: Self-Acceptance. Secondary: Self-Security and Social Maturity.

6. Realizing that they (and other people) are okay being themselves. Primary: Self-Acceptance, Self-Security, Social Maturity, Social Confidence, Peer Affiliation and Teacher Affiliation.

7. Developing flexible, rather than rigid, outlooks, and behaviors. Secondary: Social Maturity and Self-Security.

8. Becoming more in charge of, and responsible for, their own behavior. Primary: Social Maturity and Intellectual-Achievement Responsibility.

Achievement variables were selected, not as result of stated program objectives, but (a) because affective programs are more likely to be received by schools if a direct relationship with cognitive outcomes can be established and (b) because of the vast amount of research in which affective treatment variables have been successfully employed to improve or maintain academic achievement. Ball (1974a), in a Human Development Training Institute publication designed to acquaint readers with the purpose and procedure of the "Magic Circle" program lends support to this rationale by including, in her review of the literature, a section summarizing selected studies in which affective treatment programs resulted in improvements in cognitive dependent variables.

Self Observation Scales

Description

The Self Observation Scales (SOS) (Katzenmeyer & Stenner, 1974a; Stenner & Katzenmeyer, 1974) is a group administered, self-report, affective inventory which emphasizes measurement of healthy development and positive personal attributes rathern than maladjustment of pathology. It is available in two forms, A and B, at both the Primary (K-3) and Intermediate (4-6) Levels, each of which consists of a series of statements to which the subject indicates personal agreement or disagreement.

At the Intermediate Level the self-administered inventory consists of sixty items, printed on an electronically processed response form

directly beside "yes-no" response grids. Scales at this level include Self-Acceptance, Self-Security, Social Maturity, Social Confidence, Peer Affiliation, Teacher Affiliation, and School Affiliation.

At the Primary Level the inventory is composed of fifty items administered orally by the examiner. The format of the electronically processed response sheet is designed to maintain motivation and facilitate accuracy in locating the appropriate response grid position in that, (a) response grids are depicted as the nose of a clown, a "happy" face representing a "yes" response, a "sad face representing a "no" response, and (b) items are arranged in separate blocks, each numbered as well as accompanied by a relatively familiar and appealing illustration such as a pencil, ball, or ice cream cone. Scales at the Primary Level include Self-Acceptance, Social Maturity, School Affiliation, and Self-Security.

Scores are reported for both levels as Standard scores, percentile scores, and stanine scores, based on norms established using 9030 K-3 students and 7580 4-6 grade students.

Intellectual-Achievement Responsibility Scale

Description

The Intellectual-Achievement Responsibility questionaire (IAR) (Crandal, Katkovsy & Crandall, 1965), applicable for the grade range 3-12, consists of 34 forced choice items, equally divided between positive and negative intellectual-achievement experiences which routinely occur in the lives of school children. Each item consists of a statement depicting either a positive or negative intellectual-achievement situation followed by two alternative explanations, one suggesting the consequences were due to the actions of the child himself/herself, an internal orientation, the other suggesting results were caused by another person in the

child's immediate environment, an external orientation. Scoring is accomplished by crediting items exhibiting an internal orientation. Resulting subscales are for internal responsibility for intellectual-achievement successes (I+), internal responsibility for intellectual-achievement failures (I-), and a total score (I_t), the summation of I+ and I- scores.

California Achievement Test

Description

The California Achievement Test (CAT), 1970 edition, (Teigs & Clark, 1970a,b,c,d,e, 1972) is a series of academic achievement batteries, available in alternate forms at five overlapping levels, appropriate for measuring academic performance for grades 1.5 through 12. The battery is a revision of the 1957 CAT, and is intended to improve and modernize the test, as well as to integrate the norms with related measurements. It measures content and objectives in the basic skill areas of (a) reading (vocabulary and comprehension subtests), (b) mathematics (computation and concepts and problems subtest), and (c) language (auding, mechanics, usage and structure, and spelling subtests), in addition to providing a total achievement score.

The CAT is group administered via re-usable test booklets and one of two varieties of response forms; one of which may be either electronically processed or scored by hand with the use of a scoring key, the other of which is constructed of preforated pages enclosing double-faced carbon paper which records correct responses for self-scoring without additional aids. Raw scores can be converted to national percentile ranks, local percentile ranks, grade equivalent scores, achievement development scale scores, national stanines, and local stanines. The

achievement development scale scores were selected for use in this research because these scores are normalized standard scores, identially interpretable across levels, forms, and scales. These score characteristics were beneficial in that they permitted parity of data among the three levels of the CAT and among the CAT and scores from the other measurements in the multivariate design.

At the second grade level testing with the California Achievement Test involved Level 1, Form A, as pre-test and Level 2, Form A, post-test; at the fourth grade Level 2, Form A, was used for pre-testing and Level 3, Form A, for post-testing; and for the sixth grade Level 3, Form A, was used for both pre- and post-testing.

Interaction Analysis

Interaction Analysis is a term applied to any one of several classification systems designed to provide researchers with a standardized, reliable means by which to quantify and qualify certain kinds of behavior. Perhaps the best known system is that of Ned Flanders (1970), and it is an adaptation of that system which has been used in this phase of the research study.

It has been estimated that almost 70% of instructional time in the classroom is devoted to talking, either by the teacher or by the students. Approximately two-thirds of this time consists of teacher talk, and approximately two-thirds of all teacher talk is comprised of direct influence, such as lecture, direction-giving, and criticism.

As indicated earlier, one of the claims of the Human Development Program is that participation in the program by teachers tends to bring about changes in classroom behavior, notably in the direction of more open, child-oriented behavior. If this is true, evaluation of teacher conduct within the

classroom through the use of interaction analysis should indicate that positive growth occurs on the part of the teacher during the period of time in which she is actively making use of the Human Development Program.

Two raters were used in the evaluation of teacher behavior, both of whom had been extensively trained in the use of the methods. Following a brief period during which a suitable reliability level (r=.83) was established through the use of videotaped Magic Circle sessions, the two raters visited each teacher in each school, spending six thirty-minute periods in each classroom and an additional six periods in the classroom in the observation of Magic Circle activities. The rating sessions were spread throughout the year, thereby establishing a base of performance as well as a basis for evaluating teacher growth or movement.

Data Collection

Except for the administration of the California Achievement Test, which was administered as part of required school-wide testing in both schools during April of the year immediately preceding the project period, and the Interaction Analysis data which was gathered throughout the year, the pre-test battery was administered in early September, 1975, at the beginning of the school year. The post-test battery was administered in late April and early May of 1976, a few weeks prior to the close of school; the achievement test again, however, was part of school administered testing. The treatment period with regard to evaluation dates was, therefore, eight months in length.

Tests were administered orally, one instrument per day, to classroom or grade-unit groups, mid-morning of routine school days. An alternating administration schedule, beginning with treatment classes and concluding with control classes, for each measurement instrument, was followed.

Students not present at the time of initial testing were subsequently identified and tested in small groups using the same procedures as used in initial testing. In order to prevent contamination by differential subject treatment, an attempt was made to test all students at each grade level regardless of their final status with respect to inclusion in the data bank.

Data Analysis

Data were analyzed by two distinct, but complementary multivariate techniques, Cattell's Index of Profile Similarity r_p and Discriminant Function Analysis D_F. The Cattell profile analysis is a statistical technique designed to evaluate multivariate data for two or more groups in a global manner by simulaneously taking into account the profile shape and the elevation of the set of variables for each group. Thus, both the numerical similarity or dissimilarity among variables and the relative similarity or dissimilarity of variable patterns of the groups are considered.

The Discriminant Function was selected for complementary statistical analysis of the data in that it both compensates for the described limitation of the Cattell Index of Profile Similarity, as well as adds another important dimension to statistical treatment. The Discriminant Function concurrently performs analysis of variance among groups for each variable in the data set and extracts discriminant factors, that is, composites of variables which maximize the statistical separation of groups.

Data in interaction analysis is obtained by having the rater record a category number every three seconds during the observational period. For

purposes of interpretation, these recorded tallies are paired and subsequently transferred into a matrix. Such matrices permit the calculation of larger more meaningful pieces of data as represented by the following ratios:

1. Revised Indirect/Direct Ratio (i/d)

   Categories 1 + 2 + 3 / Categories 7 + 8 + 9

2. Student Talk / Teacher Talk Ratio (TRR)

   Categories 10 + 11 + 12 / Categories 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9

To make the most efficient use of data obtained by this technique, single observation matrices were summed for the six teachers and a composite formed for each. Flanders has suggested that a composite matrix of 500-600 tallies is adequate for meaningful interpretation; since the number of tallies in this phase of the study was more than double that amount, it is felt that the ratios described represent a valid sample of teacher behaviors in this regard.

In summary, the statistical techniques of the study permitted four distinct analyses; (a) an analysis of the data set based on profile shape and elevation, (b) analysis of variance among groups for each variable, (c) composition of discriminant factors from among variables, and (d) appropriate ratios of interaction analysis observations.

Results

The specific intent of this research was to provide information regarding the effects of the Human Development Program "Magic Circle," through a short-term field study utilizing a pre- and post-test multivariate design, by comparing selected affective, cognitive, and confluent dimensions of second, fourth, and sixth grade students who participated in the program for one school year with similar children in a comparable educational setting who did not participate in the program. In addition, the classroom teaching style and the Magic Circle behavior of the teachers engaged in the project were examined systematically through the use of Interaction Analysis to determine the effects, if any, of the Human Development Program upon the teaching behavior of these teachers.

Students from two Tuscaloosa County schools served as subjects, one group of which experienced the "Magic Circle" program on a regular schedule over the entire school year, the other of which experienced only the regular school curriculum. After all data were collected, analysis was accomplished by the Cattell Index of Profile Similarity and the Discriminant Function, two complementary multivariate techniques which permitted analysis of variance of each univariate, as well as composite analysis of the data sets. The .05 level of confidence was selected for rejection of null hypotheses.

Results of the study will be presented by stating each study hypothesis, immediately followed by a report of the analysis of data regarding the hypothesis, including: (a) indirect evaluation of the hypothesis by comparisons of the treatment group pre- and post-test scores and the control group pre- and post-test scores, (b) direct evaluation by, first, establishing similarity of groups through analysis of treatment and control groups pre-test data, and subsequent testing

of the null hypothesis through analysis of treatment and control groups post-test data, and (c) summarizing conclusions by synthesizing all data and stating rejection, nonrejection, or acceptance of the null hypothesis.

Hypothesis I: Second Grade

No statistically significant differences exist between students who participated in the Human Development Program and students who did not participate in the program in:

1. Affect (self acceptance, self security, and social maturity).
2. Cognition (reading achievement and mathematics achievement).
3. Confluence (school affiliation).

Indirect Evaluation

Treatment Group Pre- to Post-Test Evaluation

1. Affective Variables: Comparison of pre- and post-test affective data for the second grade treatment group by Discriminant Function univariate analysis of variance yielded a significant difference (a decrease) in Self Acceptance ($F = 6.8690$; $p < .0099$) over the research period, but no statistically significant differences for Self Security ($F = 1.3054$; $p > .2548$) or Social Maturity ($F = 1.2163$; $p > .2721$).

2. Cognitive Variables: Statistically significant differences for the treatment subjects in both Reading ($F = 14.5670$; $p < .0005$) and Mathematics ($F = 12.0551$; $p < .0011$) achievement were realized over the treatment period.

3. Confluent Variables: School Affiliation, the only available confluent variable at the second grade level, exhibited no appreciable difference ($F = 1.1103$; $p > .2948$) for the treatment group at the points of pre- and post-testing.

4. Composite: Evaluation of the composite of all treatment group variables by the Cattell Index of Profile Similarity suggested that the profiles composed of pre- and post-test data were significantly dissimilar ($r_p = .748$; $p < .01$). Furthermore, the scores were separated by the Discriminant Function to a statistically significant degree ($F = 3.832$; $p < .0022$). Reading Achievement ($r = .8080$), Mathematics Achievement ($r = .7433$) and Self Acceptance ($r = -.5748$) were principal components of the Discriminant Root, and were identified as most dissimilar by the Cattell Index.

5. Summary: Three of the six research variables, one affective and two cognitive, exhibited significant differences for the second grade treatment group at the points of pre- and post-testing. Both cognitive variables, Reading and Mathematics Achievement, were significantly higher following the project period than prior to it, whereas, Self Acceptance had declined to a level where post-treatment Self Acceptance was significantly lower than pre-treatment scores. Changes in other variables were inconsistent and below the level of significance. Both the Cattell and Discriminant analysis indicated a dis-similarity of groups based on pre- and post-test comparison, with those variables which exhibited significant difference between pre- and post-testing contributing most substantially to the Discriminant Root and to the Cattell polygon. Table 2 presents a comparison of treatment group pre- and post-test data based on Cattell and Discriminant analyses. Figure 1 presents a z-score polygon based on Cattell analysis of the treatment group scores.

Table 2

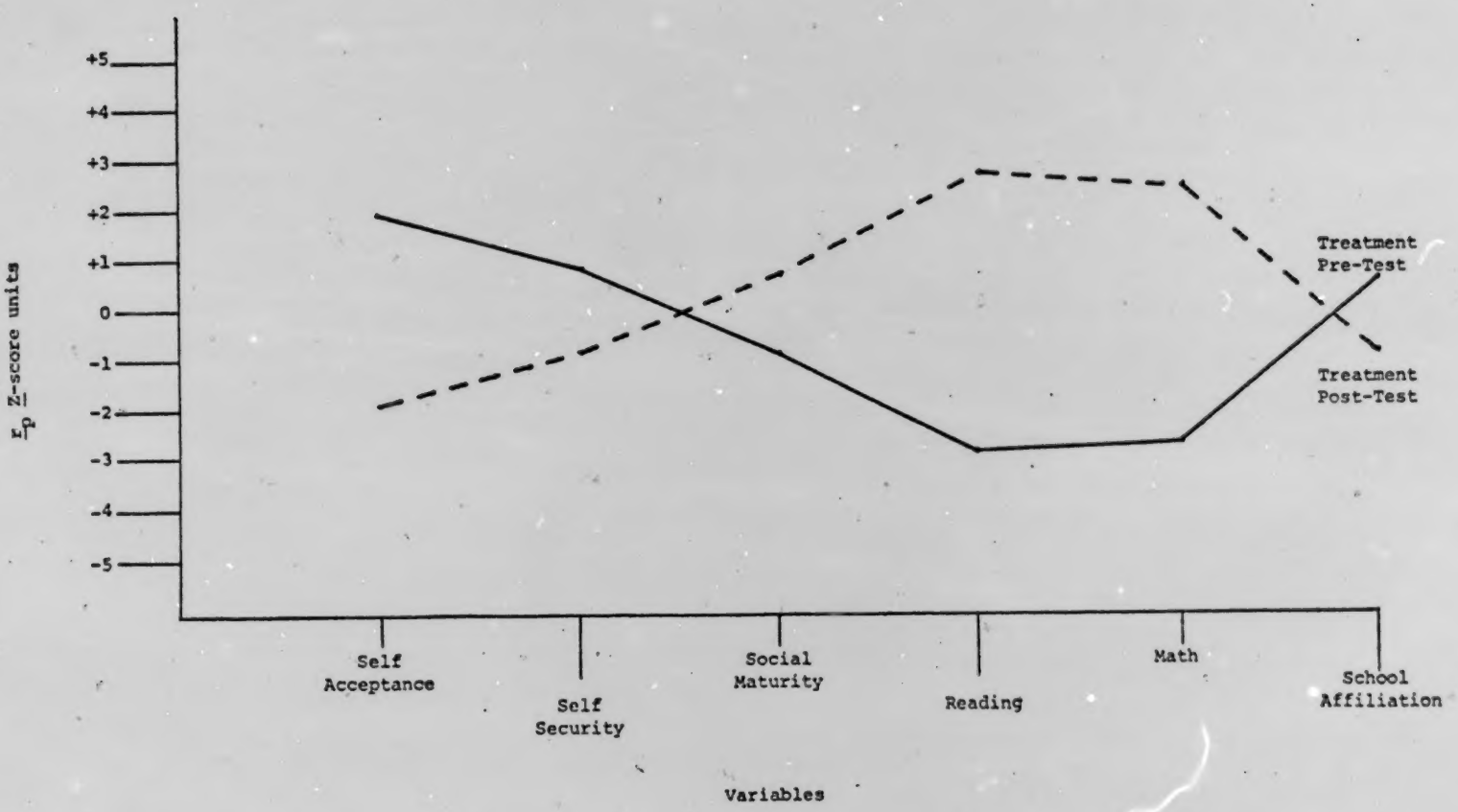
Comparison of Second Grade Treatment Group on Pre- and Post-Test Data
By the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Treatment Pre-Test			Treatment Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	P
Affective	Self Acceptance	53.38	7.93	1.853	49.70	5.98	-1.853	-.5748	6.8690	.0099*
	Self Security	50.80	10.37	0.808	49.02	3.72	-0.808	-.2575	1.3054	.2548
	Social Maturity	45.72	10.39	-0.780	47.54	5.31	0.780	.2487	1.2163	.2721
Cognitive	Reading Achievement	269.44	41.99	-2.699	306.38	54.04	2.699	.8080	14.5670	.0005*
	Math Achievement	244.92	43.95	-2.455	273.14	37.03	2.455	.7433	12.0551	.0011*
Confluent	School Affiliation	51.70	8.92	0.745	50.24	4.04	-0.745	-.2377	1.1103	.2948
					Cattell Index of Profile Similarity Coefficient: r_p = -.748					.01*
					Discriminant Function Analysis F-Ratio: D_F = 3.832					.0022*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .90 level for acceptance of a true hypothesis

Figure 1

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Second Grade Treatment Group Pre- and Post-Test Data



Control Group Pre- to Post-Test Evaluation

1. Affective Variables: All affective variables of the control group were virtually unchanged during the research period and exhibited no significant differences from pre- to post-testing. For Self Acceptance $F = .0174$ with $p > .8906$, for Self Security $F = .0114$ with $p > .9116$, and for Social Maturity $F = .0978$ with $p > .7535$. Control group Self Security scores met the criterion for significant similarity of pre- and post-test scores; therefore, a true null hypothesis for this variable is accepted.

2. Cognitive Variables: Just as for the treatment group, both Reading Achievement ($F = 21.3809$; $p < .0001$) and Mathematics Achievement ($F = 17.0893$; $p < .0002$) were significantly different between control group pre- and post-testing, both exhibiting increases over the research period.

3. Confluent Variables: Control group scores for School Affiliation were not found to be significantly different at the two points of testing, to the contrary, scores were significantly similar following the research period when compared to those at the beginning of the project ($F = .0051$; $p > .9416$).

4. Composite: Both the Cattell coefficient ($r_p = -.757$; $p < .01$) and the Discriminant Function ($F = 3.749$; $p < .0027$) indicated differences between the control group pre- and post-test variable set at significant levels of confidence. The Discriminant Root exhibited a substantial correlation with Reading ($r = .9574$) and Mathematics ($r = .8733$) Achievement only. Furthermore, these variables were the only two of the variable set which were substantially dis-similar on the Cattell z-score profile.

5. Summary: All variables of the second grade control group were essentially unchanged over the research period, with the exception of cognitive variables, Reading and Mathematics Achievement, both of which were significantly higher at the conclusion of the research period than at the beginning of the period. In fact, Self Security and School Affiliation were found to be statistically significant with regard to similarity of pre- and post-test scores for the control subjects. The Cattell coefficient and Discriminant Function indicated significant differences between the control group pre- and post-data sets, almost solely as a result of the changes in the cognitive variables experienced over the research period. Table 3 and Figure 2 present, respectively, a comparison of the second grade control group by the Cattell and Discriminant analysis on pre- and post-test data and a z-score polygon based on the Cattell analysis.

Direct Evaluation

Treatment and Control Group Pre-Test Evaluation

1. Affective Variables: Discriminant Function univariate analysis of variance revealed no significant differences among any of the pre-test affective variables, Self Acceptance ($F = 1.9152$; $p > .1662$), Self Security ($F = .1053$, $p > .7452$), and Social Maturity ($F = .4127$, $p > .5293$), between the treatment and control subjects.

2. Cognitive Variables: Neither were differences identified between the groups for either Reading ($F = 2,4989$; $p > .1133$) or Mathematics ($F = .3518$; $p > .5616$) Achievement for pre-test data.

3. Confluent Variables: In addition, the treatment and control

Table 3

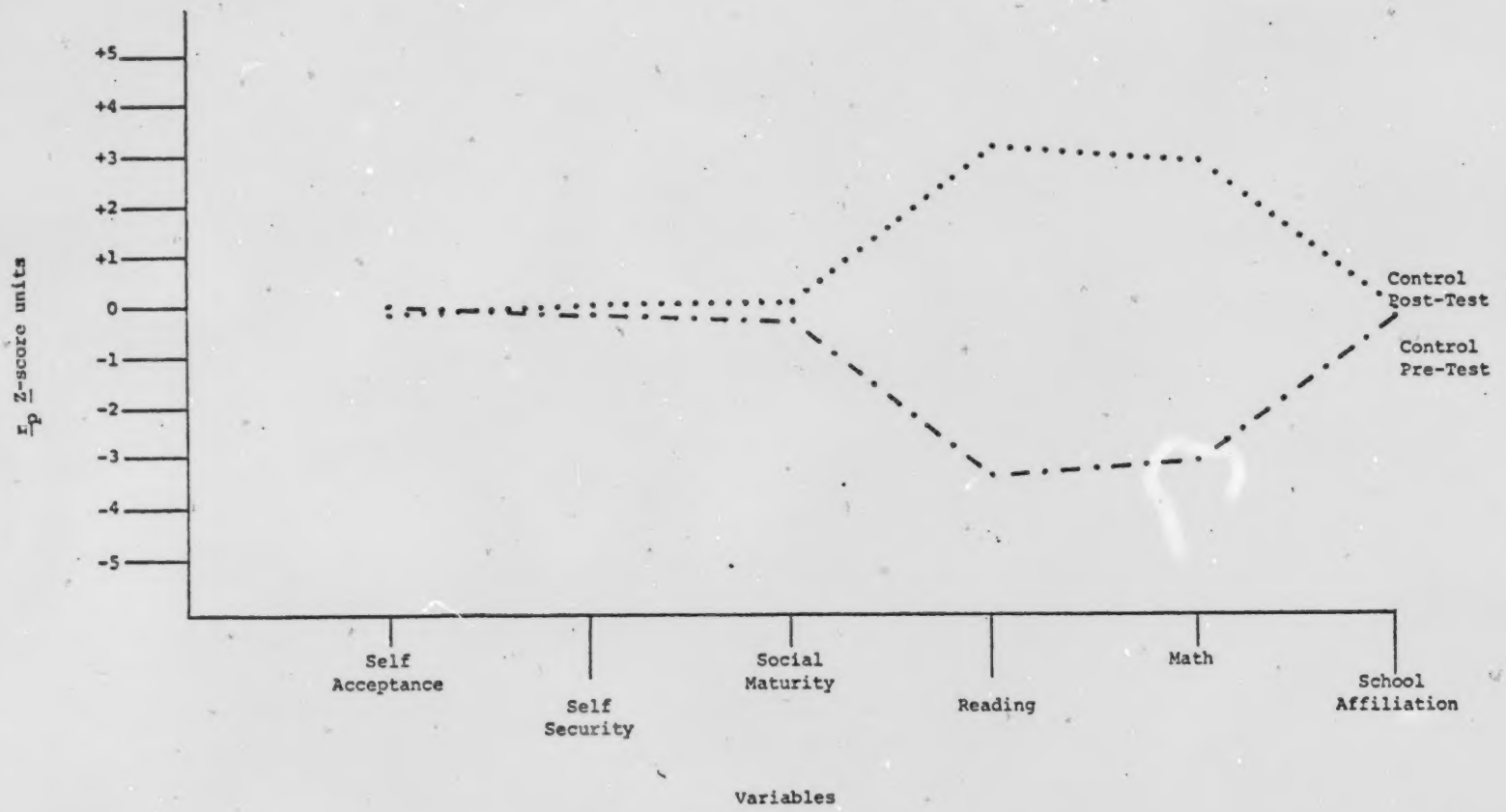
Comparison of Second Grade Control Group on Pre- and Post-Test Data
By the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Control Pre-Test			Control Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	p
Affective	Self Acceptance	50.87	9.76	0.093	50.64	5.73	-0.093	-.0304	.0174	.8906
	Self Security	50.16	8.82	-0.075	50.31	4.33	0.075	.0245	.0114	.9116**
	Social Maturity	47.09	10.35	-0.221	47.64	5.92	0.221	.0721	.0978	.7535
Cognitive	Reading Achievement	257.73	27.96	-3.270	300.76	55.80	3.270	.9574	21.3809	.0001*
	Math Achievement	249.31	24.34	-2.923	272.31	28.30	2.923	.8733	17.0893	.0002*
Confluent	School Affiliation	49.18	11.63	-0.050	49.31	4.90	0.050	.0164	.0051	.9416**
					Cattell Index of Profile Similarity Coefficient: r_p = -.757					.01*
					Discriminant Function Analysis F-Ratio: D_F = 3.749					.0027*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .90 level for acceptance of a true hypothesis

Figure 2

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Second Grade Control Group Pre- and Post-Test Data



subjects were found to be not significantly different in School Affiliation ($F = 1,4219$; $p > .2342$) at the time of pre-testing.

4. Composite: Profile analysis by the Cattell Index of the treatment and control groups on pre-test variables yielded no significant dis-similarity above the level of chance ($r_p = -.114$; $p > .10$); however, the Discriminant Function was able to significantly separate the groups ($F = 2.786$; $p < .0157$) based principally on a Discriminant Root composed of Reading Achievement ($r = .4049$) and Self Acceptance ($r = .3555$), both of which were higher for the treatment group.

5. Summary: Of all data analysis procedures, only the Discriminant Function suggested a difference between the second grade treatment and control groups at the initiation of the project. Since Discriminant Function Analysis is designed to capitalize on all points of between group error variance, and is, in this instance, in contradiction of Cattell profile analysis, it is felt that the difference suggested by this analysis alone should not be taken as sufficient evidence of group dis-similarity to preclude direct comparison of post-test profiles for the groups. The results of Discriminant Analysis should be viewed in general, however, as a predisposition to dis-similarity of the groups and post-test evaluation of data should bear this in mind. Data on treatment and control group pre-test comparisons are presented in Table 4 and Figure 3.

Treatment and Control Group Post-Test Evaluation

1. Affective Variables: No significant differences were established for any of the three affective variables between the second grade treatment and control groups based on analysis of variance of post-test data

Table 4

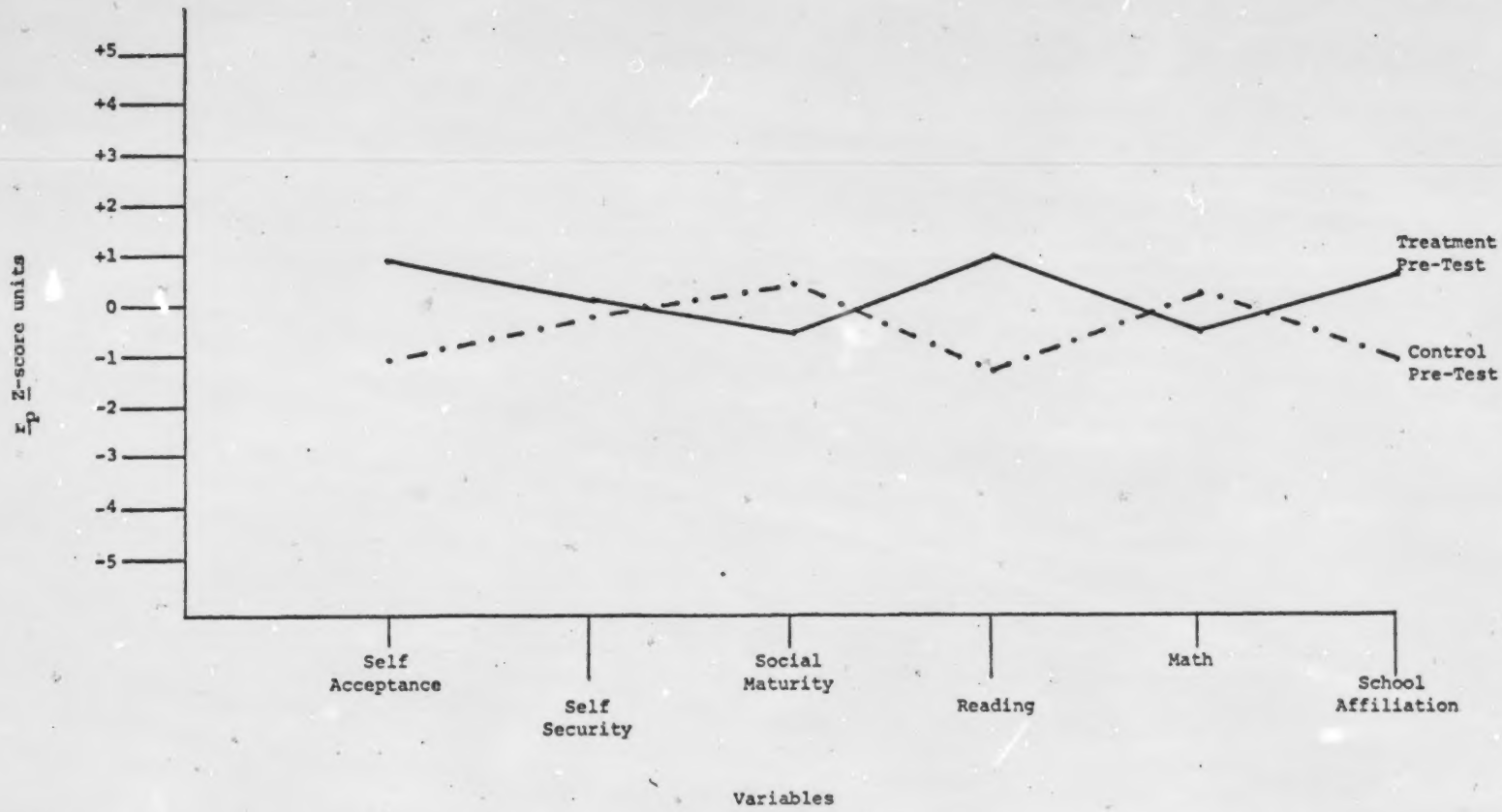
Comparison of Second Grade Treatment and Control Groups on Pre-Test Data by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Treatment Pre-Test			Control Pre-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	P
Affective	Self Acceptance	53.38	7.93	0.928	50.87	9.76	-1.031	.3555	1.9152	.1662
	Self Security	50.80	10.37	0.218	50.16	8.82	-0.242	.0842	.1053	.7452
	Social Maturity	45.72	10.39	-0.431	47.09	10.35	0.479	-.1663	.4127	.5293
Cognitive	Reading Achievement	269.44	41.99	1.060	257.73	27.96	-1.178	.4049	2.4989	.1133
	Math Achievement	244.92	43.95	-0.398	249.31	24.34	0.442	-.1536	.3518	.5616
Confluent	School Affiliation	51.70	8.92	0.800	49.18	11.63	-0.889	.3071	1.4219	.2342
					Cattell Index of Profile Similarity Coefficient: r_p =			-.114		>.10
					Discriminant Function Analysis F-Ratio: D_F =			2.786		.0157*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .90 level for acceptance of a true hypothesis

Figure 3

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p) for Second Grade Treatment and Control Groups Pre-Test Data



for Self Acceptance an F of .6151 was obtained, resulting in a $p >$ .5591, for Self Security an F of 2.4439 was obtained, with a resultant $p >$ .1174, and for Social Maturity F = .0083 and $p >$ .9247. The probability established for Social Maturity post-test scores was at the level established for recognition of a true null hypothesis. Therefore, treatment and control post-test Social Maturity was asserted to be significantly similar.

2. Cognitive Variables: Statistically significant differences between the treatment and control subjects on post-test Reading (F = .2488; $p >$ .6250) and Mathematics (F = .0148; $p >$ .8993) Achievement scores were contraindicated.

3. Confluent Variables: Furthermore, no statistically significant difference between the research groups on post-test School Affiliation (F = 1.0226; $p >$ .3155) was found.

4. Composite: Neither the Cattell coefficient (r_p = .101; $p >$ .10) nor the Discriminant Function (F = .9840; $p >$ .5581) was able to differentiate between the post-test variable sets of the two groups at a significant level.

5. Summary: No significant post-test differences were found for univariate analysis of variance, Cattell profile analysis, or Discriminant analysis between the second grade treatment and control subjects. Significant similarity was, however, found for post-test Social Maturity in support of a true null hypothesis for this variable. Table 5 presents data resulting from comparison of second grade treatment and control groups by the Cattell Index of Profile Similarity and Discriminant Function Analysis; while Figure 4 depicts the z-score polygon resulting from Cattell analysis of the two groups.

Table 5

Comparison of Second Grade Treatment and Control Groups on Post-Test Data
by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Treatment Post-Test			Control Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	P
Affective	Self Acceptance	49.70	5.98	-0.526	50.64	5.73	0.585	-.3233	.6151	.5591
	Self Security	49.02	3.72	-1.049	50.31	4.33	1.165	-.6381	2.4439	.1174
	Social Maturity	47.54	5.31	-0.061	47.64	5.92	0.068	-.0375	.0083	.9247**
Cognitive	Reading Achievement	306.38	54.04	0.335	300.76	55.80	-0.372	.2060	.2488	.6250
	Math Achievement	273.14	37.03	0.082	272.31	28.30	-0.091	.0503	.0148	.8993
Confluent	School Affiliation	50.24	4.04	0.678	49.31	4.90	-0.754	.4159	1.0226	.3155
					Cattell Index of Profile Similarity Coefficient: r_p = .101					>.10
					Discriminant Function Analysis F-Ratio: D_F = .9840					.5581

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .90 level for acceptance of a true hypothesis

Conclusion

Based on pre-test comparisons of the second grade treatment and control groups, the groups were judged to be sufficiently similar with respect to each variable and the variable set, with the exception of Discriminant Analysis, as to not impair direct comparison of post-test results. Subsequent post-test analysis indicated no significant differences among univariates or variable composites, to include Discriminant Analysis. Therefore, the null hypothesis cannot be rejected for any variable or variable composite for the second grade. On the other hand, only one variable was found to be statistically similar at post-testing, Social Maturity, for which a true null hypothesis is asserted.

Each group was, however, found to be significantly different from pre- to post-testing based on composite analysis by the Cattell and Discriminant procedures, as well as on both cognitive measures (tested by univariate analysis of variance). In addition, for the treatment group, a decrease in Self Acceptance over the treatment period resulted in computation of a significant difference on that variable between pre- and post-testing.

The data, therefore, indicate no distinct differences between the groups at the initiation or conclusion of treatment, and suggest group similarity in the growth and stability of specific variables, with the sole exception of a tendency on the part of the treatment group to regress in Self Acceptance, not similarly displayed by the control subjects.

Hypothesis II: Fourth Grade

No statistically significant differences exist between students who participated in the Human Development Program and students who did not participate in the program in:

1. Affect (self acceptance, self security, social maturity, and self confidence).

2. Cognition (reading achievement and mathematics achievement).

3. Confluence (school affiliation, teacher affiliation, peer affiliation, and internal positive, internal negative, and total internal intellectual-achievement responsibility).

Indirect Evaluation

Treatment Group Pre- to Post-Test Evaluation

1. Affective Variables: Statistical analysis of pre- and post-test univariates of the fourth grade treatment group indicates significant differences among three of the four affective variables. Self Acceptance scores ($F = 31.9755$; $p < .0001$) were lower at the end of the treatment period than at the beginning, whereas, Social Maturity ($F = 6.2911$; $p < .0134$) and Social Confidence ($F = 13.5870$; $p < .0007$) were higher. No significant difference was found, however, for Self Security ($F = .5566$; $p > .5357$).

2. Cognitive Variables: Both the Reading Achievement ($F = 8.3643$; $p < .0051$) and Mathematics Achievement ($F = 4.7670$; $p < .0299$) of the treatment subjects were improved over the research period and exhibited significant differences between pre- and post-test scores.

3. Confluent Variables: Treatment group scores in expressed School Affiliation ($F = 66.2234$; $p < .0001$) and Teacher Affiliation

($F = 7.6929$; $p < 0069$) declined over the treatment period to an extent that differences between scores at the time of pre-testing and post-testing were statistically significant. In addition, a decrease in Peer Affiliation ($F = 2.8766$; $p > .0897$) resulted in a difference between pre-treatment and post-treatment scores just short of statistical significance. IAR scores were not appreciably changed over the treatment period; for I+ an F of .5182 was found, with $p > .5195$, for I- an F of .0908 was found, $p > .7617$ and for I_t an F of .0088 was found, $p > .9224$. The probability associated with treatment group Total Internal Intellectual-Achievement Responsibility is sufficient to assert significant similarity for this group on this variable over the treatment period.

4. Composite: The Cattell coefficient ($r_p = -.853$; $p < .01$), as well as the Discriminant Function ($F = 9.679$; $p < .0001$) calculated significant dis-similarity between the groups based on pre- and post-test data sets. Principal correlates of the Discriminant Root were: School Affiliation ($r = -.8473$), Self Acceptance ($r = -.6701$), and Social Confidence ($r = .4762$). School Affiliation and Self Acceptance and, to a lesser degree, Social Confidence, Social Maturity, Teacher Affiliation, and Reading and Mathematic Achievement were identified as most dissimilar by the Cattell polygon.

5. Summary: Of the twelve variables under study, seven exhibited sufficient change over the treatment period to produce significant differences between treatment group pre- and post-test scores. Of these variables, the two cognitive indices were increased, while three affective and two confluent variables declined. In addition, a third confluent

Table 6

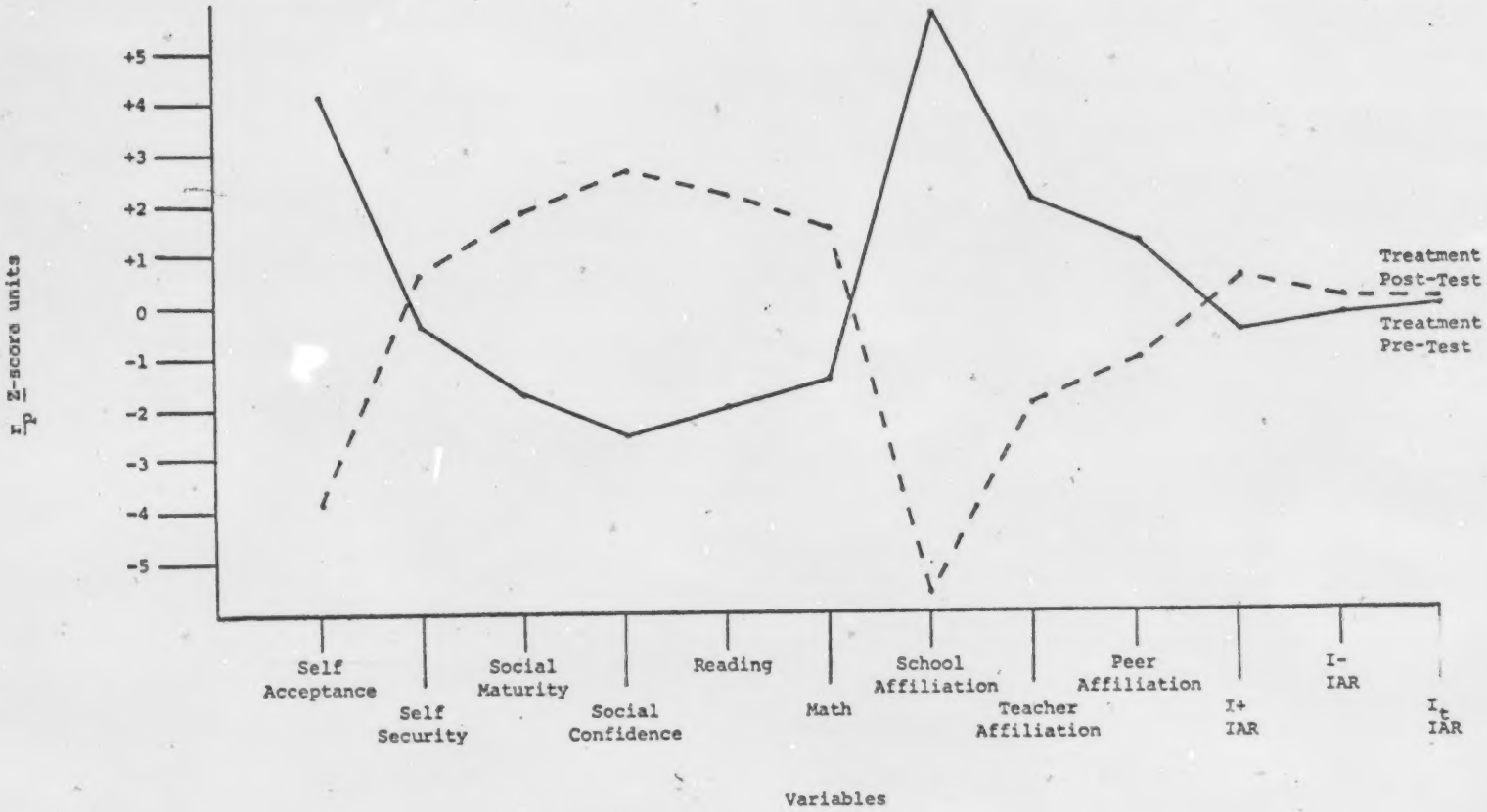
Comparison of Fourth Grade Treatment Group on Pre- and Post-Test Data
by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_p)

		Treatment Pre-Test			Treatment Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	p
Affective	Self Acceptance	57.00	6.02	3.998	50.42	4.70	-3.998	-.6701	31.9755	.0001*
	Self Security	51.60	11.35	-0.528	53.12	6.92	0.528	.1035	.5566	.5357
	Social Maturity	45.14	11.62	-1.774	50.07	5.59	1.774	.3368	6.2911	.0134*
	Social Confidence	44.79	9.45	-2.606	50.74	4.78	2.606	.4762	13.5870	.0007*
Cognitive	Reading Achievement	337.21	54.25	-2.045	372.07	57.49	2.045	.3840	8.3643	.0051*
	Math Achievement	318.07	44.71	-1.544	341.14	52.93	1.544	.2957	4.7670	.0299*
Confluent	School Affiliation	64.09	6.29	5.754	50.21	9.25	-5.754	-.8473	66.2234	.0001*
	Teacher Affiliation	54.23	6.14	1.961	50.51	6.30	-1.961	-.3696	7.6929	.0069*
	Peer Affiliation	51.19	10.87	1.199	48.16	4.30	-1.199	-.2322	2.8766	.0897
	Internal Positive IAR	12.60	2.27	-0.509	12.95	2.22	0.509	.0999	.5182	.5195
	Internal Negative IAR	10.49	2.90	-0.213	10.70	3.52	0.213	.0419	.0908	.7617
	Total Internal IAR	23.33	4.57	-0.067	23.42	4.59	0.067	.0131	.0088	.9224**
					Cattell Index of Profile Similarity Coefficient: r_p = -.853					.01*
					Discriminant Function Analysis F-Ratio: D_p = 9.679					.0001*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .09 level for acceptance of a true hypothesis

Figure 5

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Fourth Grade Treatment Group Pre- and Post-Test Data



variable, Peer Affiliation, approached a difference of statistical significance, post-test scores also lower than pre-test scores. Both composite analyses demonstrated significant separation of the treatment group pre- and post-test data, primarily as a result of School Affiliation and Self Acceptance, but involving several other variables at less substantial levels. Comparison of fourth grade treatment group data and the r_p z-score polygon are presented in Table 6 and Figure 5, respectively.

Control Group Pre- to Post-Test Evaluation

1. Affective Variables: For the control group over the research period, Self Acceptance exhibited a significant difference ($F = 15.4253$; $p < .0004$), with end-of-year scores lower than beginning-of-year scores. There was no consistent, nor significant differences among other fourth grade control subject affective variables; Self Security ($F = .1267$; $p > .7235$), Social Maturity ($F = .3955$; $p > .5388$), and Social Confidence ($F = 1.0659$; $p > .3065$).

2. Cognitive Variables: Mathematics Achievement ($F = 3.7523$; $p < .0542$), but not Reading Achievement ($F = 1.3342$; $p > .2512$), was significantly higher for the control subjects at post-testing than at pre-testing.

3. Confluent Variables: Both School Affiliation ($F = 19.5553$; $p < .0001$) and Teacher Affiliation ($F = 13.1117$; $p < .0009$) receded over the research period to levels of significance between pre-test and post-test scores. Peer Affiliation, however, was essentially unchanged ($F = .0789$; $p > .7765$). With regard to Intellectual-Achievement Responsibility variables, control group Internal Positive post-test

responses indicated a gain in this area to a level of significance over pre-test scores ($F = 4.0525$; $p < .0457$). Internal Negative ($F = .0876$; $p > .7657$) and Total Internal ($F = .8033$; $p > .6229$) scores were not significantly different at the two points of measurement.

4. Composite: The Cattell coefficient ($r_p = -.681$; $p < .01$) indicated a significant dis-similarity between control group pre- and post-test profiles, with this result substantiated by significant separation of the variable sets by Discriminant Function Analysis ($F = 4.417$; $p < .0002$). Coefficients of the variables exhibiting the strongest relationships with the Discriminant Root included: $r = -.6916$ for School Affiliation, $r = -.6309$ for Self Acceptance, and $r = -.5890$ for Teacher Affiliation. These same variables, as well as less substantial ones of Mathematics Achievement and IAR I+, were most distinctively dis-similar on inspection of the Cattell z-score polygon.

5. Summary: For the fourth grade control group, five of the twelve univariates exhibited significant differences from pre- to post-testing, three of which, Self Acceptance, School Affiliation, and Teacher Affiliation, declined over the research period. Only Mathematics Achievement and Internal Positive Intellectual-Achievement Responsibility showed improvements resulting in significant differences over the period. Additionally, both the Cattell and Discriminant analyses demonstrated significant differences between the control group pre- and post-test data sets. Table 7 and Figure 6 depict results of the fourth grade control group data analysis by the Cattell Index of Profile Similarity and Discriminant Function.

Table 7

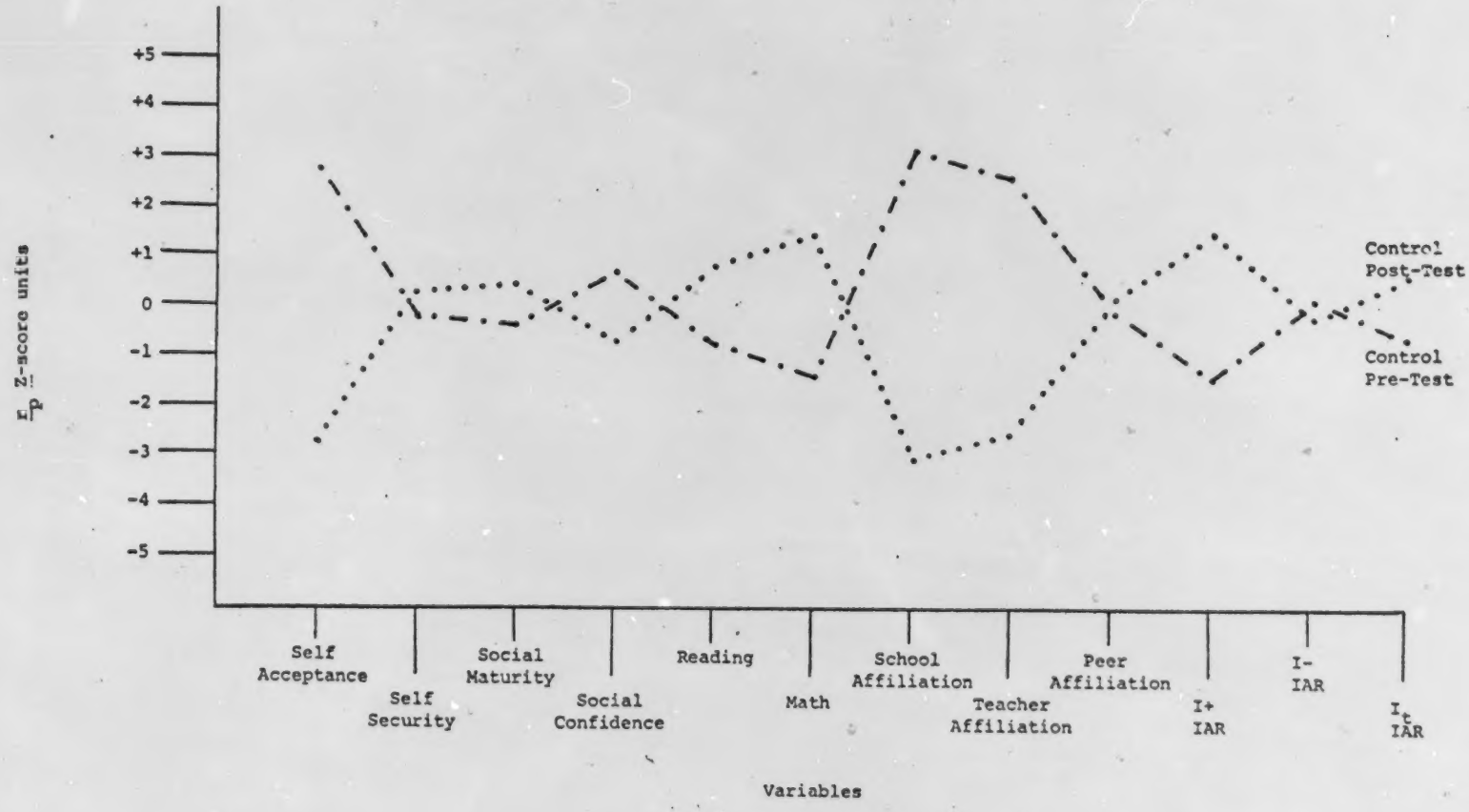
Comparison of Fourth Grade Control Group on Pre- and Post-Test Data
by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Control Pre-Test			Control Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	p
Affective	Self Acceptance	55.31	6.62	2.777	49.28	5.62	-2.777	-.6309	15.4253	.0004*
	Self Security	49.06	10.97	-0.252	49.81	4.65	0.252	.0633	.1267	.7235
	Social Maturity	50.81	9.41	-0.445	52.09	6.65	0.445	.1129	.3955	.5388
	Social Confidence	49.66	9.07	0.730	47.84	4.05	-0.730	-.1831	1.0659	.3065
Cognitive	Reading Achievement	372.72	65.19	-0.817	390.84	60.25	0.817	.2000	1.3342	.2512
	Math Achievement	349.53	40.23	-1.370	372.28	52.87	1.370	.3310	3.7523	.0542*
Confluent	School Affiliation	55.31	9.49	3.127	44.87	9.39	-3.127	-.6916	19.5553	.0001*
	Teacher Affiliation	54.41	5.24	2.560	49.41	5.79	-2.560	-.5890	13.1117	.0009*
	Peer Affiliation	49.53	9.86	-0.199	50.06	4.15	0.199	.0470	.0789	.7705
	Internal Positive IAR	12.69	2.68	-1.423	13.91	2.13	1.423	.3354	4.0525	.0457*
	Internal Negative IAR	9.34	3.24	0.209	9.09	3.51	-0.209	-.0566	.0876	.7657
	Total Internal IAR	22.03	4.30	-0.634	23.00	4.35	0.634	.1487	.8033	.6229
					Cattell Index of Profile Similarity Coefficient: r_p = -.681					.01*
					Discriminant Function Analysis F-Ratio: D_F = 4.417					.0002*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .09 level for acceptance of a true hypothesis

Figure 6

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Fourth Grade Control Group Pre- and Post-Test Data



Direct Evaluation

Treatment and Control Groups Pre-Test Evaluation

1. Affective Variables: On pre-test data, the control group demonstrated more positive scores, to a statistically significant degree, than the treatment group for Social Maturity ($F = 5.1227$; $p < .0250$) and Social Confidence $F = 5.0309$; $p < .0263$). Scores for the two remaining affective variables were not significantly different for the two groups at the initiation of the project. For Self Acceptance an F of 1.3251 was computed, with resultant $p > .2521$ and for Self Security an F of .9470 was computed, with $p > .6649$.

2. Cognitive Variables: Also, the control group's Reading ($F = 6.6144$; $p < .0117$) and Mathematics ($F = 9.\ 333$; $p < .0028$) Achievement were at significantly higher levels than for the treatment group at pre-testing.

3. Confluent Variables: Only one of the six confluent variables was significantly different between fourth grade treatment and control subjects; School Affiliation ($F = 23.1805$; $p < .0001$), the control group scores higher than the treatment group scores. Teacher Affiliation ($F = .0166$; $p > .8932$) Peer Affiliation ($F = .4598$; $p > .5069$), IAR I+ ($F = .0209$; $p > .8802$), IAR I- ($F = 2.5882$; $p > .1080$), IAR I_t ($F = 1$, ($F = 1.5470$; $p > .2151$) were not significantly different.

4. Composite: Cattell profile analysis ($r_p = -.673$; $p < .01$) and Discriminant analysis ($F = 3.313$; $p < .0012$) indicated significant differences between the groups on pre-test data. Variables most dissimilar on the z-score polygon were School Affiliation, Mathematics Achievement, Reading Achievement, and Social Maturity and Confidence.

Variables contributing to the Discriminant Root were identical to those most dis-similar on the Cattell Index (School Affiliation, $r = -.7854$); Mathematics Achievement, $r = .5525$); Reading Achievement, $r = .4611$); Social Maturity, $r = .4097$); and Social Confidence, $r = .4062$).

5. Summary: Statistically significant differences were identified between the fourth grade treatment and control groups for five of the twelve pre-test variables. Additionally, composite analysis by the Cattell r_p and Discriminant D_F demonstrated differences at levels of significance in the variables sets of the groups. Hence, the results of pre-test data analysis of fourth grade subjects complicated post-test evaluation and indicate that conclusions regarding Hypothesis II at the fourth grade level must be guarded. Table 8 presents a comparison of fourth grade treatment and control groups by Cattell and Discriminant analyses on pre-test data. Figure 7 presents the z-score polygon from Cattell analysis of pre-test scores.

Treatment and Control Groups Post-Test Evaluation

1. Affective Variables: Following the treatment period, analysis of variance of affective post-test scores indicated significant differences in Self Security ($F = 5.4561$; $p < .0210$) and Social Confidence ($F = 7.6834$; $p < .0071$), treatment group scores for both variables at higher levels than control group scores. No significant difference between Self Acceptance ($F = .9087$; $p > .6544$) or Social Maturity ($F = 2.0461$; $p > .1532$) was identified.

2. Cognitive Variables: The control group's Mathematics Achievement scores were significantly higher ($F = 6.3569$; $p < .0133$) than those of the treatment group, but a significant difference between Reading scores was not found ($F = 1.8783$; $p > .1714$).

Table 8

Comparison of Fourth Grade Treatment and Control Groups on Pre-Test Data by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Treatment Pre-Test			Control Pre-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	P
Affective	Self Acceptance	57.00	6.02	0.702	55.31	6.62	-0.943	-.2136	1.3251	.2521
	Self Security	51.60	11.35	0.594	49.06	10.97	-0.798	-.1810	.9470	.6649
	Social Maturity	45.14	11.62	-1.381	50.81	9.41	1.855	.4097	5.1227	.0250*
	Social Confidence	44.79	9.45	-1.368	49.66	9.07	1.839	.4062	5.0309	.0263*
Cognitive	Reading Achievement	337.21	54.25	-1.569	372.72	65.19	2.108	.4611	6.6144	.0117*
	Math Achievement	318.07	44.71	-1.918	349.53	40.23	2.577	.5525	9.8833	.0028*
Confluent	School Affiliation	64.09	6.29	2.937	55.31	9.49	-3.946	-.7854	23.1805	.0001*
	Teacher Affiliation	54.23	6.14	-0.079	54.41	5.24	0.106	.0241	.0166	.8932
	Peer Affiliation	51.19	10.87	0.414	49.53	9.86	-0.556	-.1266	.4598	.5069
	Internal Positive IAR	12.60	2.27	-0.088	12.69	2.68	0.119	.0271	.0209	.8802
	Internal Negative IAR	10.49	2.90	0.981	9.34	3.42	-1.319	-.2960	2.5882	.1080
	Total Internal IAR	23.33	4.57	0.759	22.03	4.30	-1.019	-.2305	1.5470	.2151
					Cattell Index of Profile Similarity Coefficient: r_p = -.673					.01*
					Discriminant Function Analysis F-Ratio: D_F = 3.313					.0012*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .09 level for acceptance of a true hypothesis

3. Confluent Variables: Among fourth grade post-test confluent variables, the treatment group was found to express more positive School Affiliation ($F = 6.0218$; $p < .0157$), as well as, exhibit a greater degree of Internal Negative Intellectual-Achievement Responsibility ($F = 3.8207$; $p < .0515$). However, the control group's Internal Positive Intellectual-Achievement Responsibility ($F = 3.4874$; $p > .0625$) and Peer Affiliation ($F = 3.6851$; $p > .0557$) were at higher levels, the differences closely approaching statistical significance. Significant differences for Teacher Affiliation ($F = .6058$; $p > .5548$) and Total Internal IAR ($F = .5195$; $p > .6933$) were not demonstrated.

4. Composite: Cattell anaylsis revealed a significant dis-similarity between treatment and control post-test profiles ($r_p = -.583$; $p < .01$), based on polygon dis-similarity among all variables. And, the Discriminant Function calculated a significant difference between the data sets ($F = 3.812$; $p < .0004$), based on a Discriminant Root primarily composed of moderate negative correlations with Social Confidence ($r = -.4736$), School Affiliation ($r = -.4237$), and Self Security ($r = -.4047$) and a moderate positive correlation with Mathematics Achievement ($r = .4344$).

5. Summary: Statistical analysis of treatment and control post-test scores indicated significant differences in Self Security, Social Confidence, School Affiliation and IAR I-, with treatment group scores at higher levels than control group scores. The control group responded with more positive Peer Affiliation and higher IAR I+ than the treatment group, at levels approaching significance, while a difference in Mathematics Achievement at a significant level was found, with treatment group scores lower than control group scores. Both composite analyses

Table 9

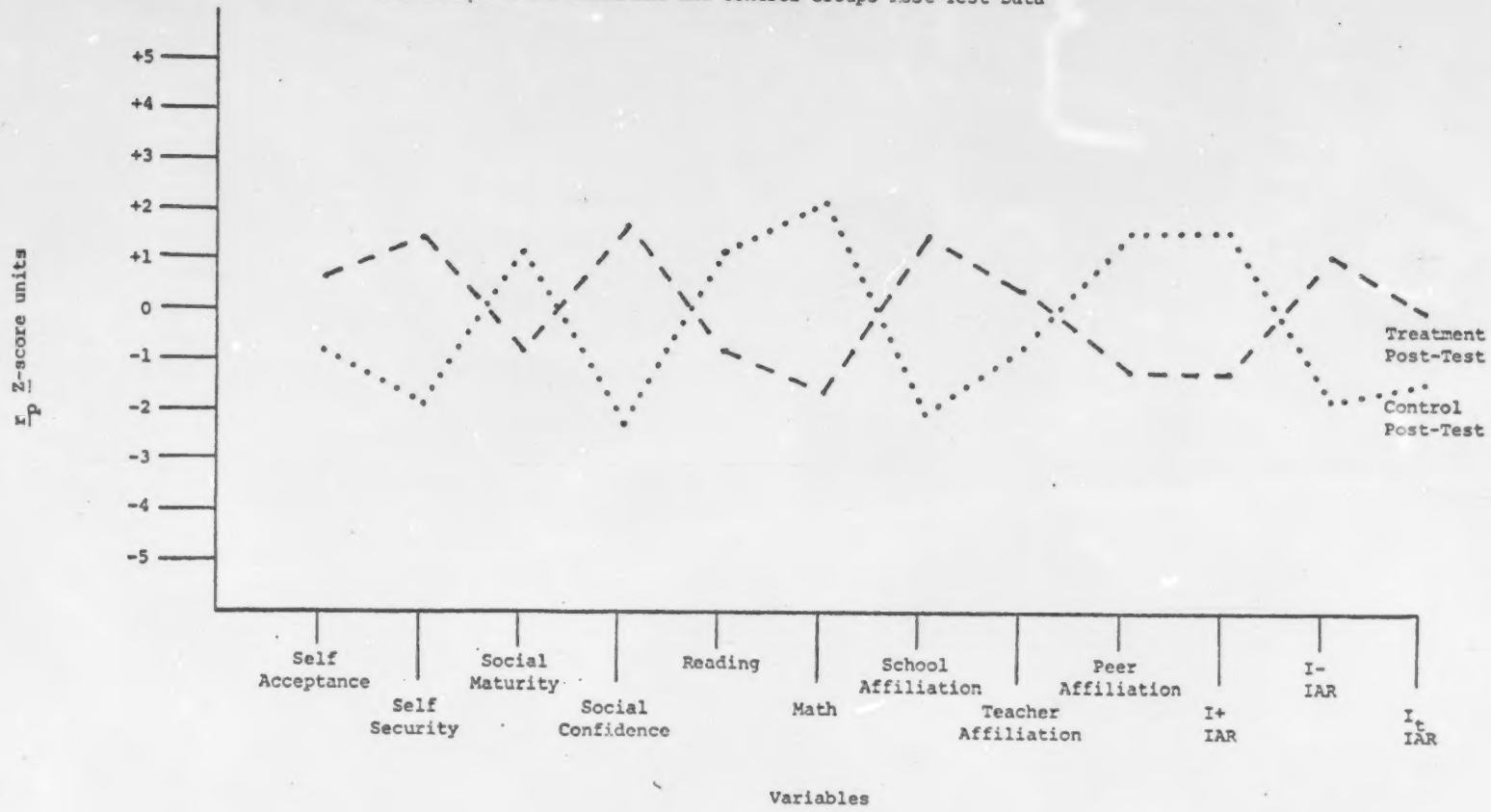
Comparison of Fourth Grade Treatment and Control Groups on Post-Test Data by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Treatment Post-Test			Control Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	P
Affective	Self Acceptance	50.42	4.70	0.581	49.28	5.62	-0.781	-.1702	.9087	.6544
	Self Security	53.12	6.92	1.425	49.81	4.65	-1.915	-.4047	5.4561	.0210*
	Social Maturity	50.07	5.59	-0.873	52.09	6.65	1.172	-.2534	2.0461	.1532
	Social Confidence	50.74	4.78	1.691	47.84	4.05	-2.272	-.4736	7.6834	.0071*
Cognitive	Reading Achievement	372.07	57.49	-0.836	390.84	60.25	1.123	.2431	1.8783	.1714
	Math Achievement	341.14	52.93	-1.538	372.28	52.87	2.067	.4344	6.3569	.0133*
Confluent	School Affiliation	50.21	9.25	1.497	44.87	9.39	-2.011	-.4237	6.0218	.0157*
	Teacher Affiliation	50.51	6.30	0.474	49.41	5.79	-0.638	-.1392	.6058	.5548
	Peer Affiliation	48.16	4.30	-1.171	50.06	4.15	1.573	.3364	3.6851	.0557
	Internal Positive IAR	12.95	2.22	-1.139	13.91	2.13	1.531	.3277	3.4874	.0625
	Internal Negative IAR	10.70	3.52	1.192	9.09	3.51	-1.602	-.3423	3.8207	.0515*
	Total Internal IAR	23.42	4.59	0.244	23.00	4.35	-0.327	-.0716	.1595	.6933
					Cattell Index of Profile Similarity Coefficient: r_p = -.583					.01*
					Discriminant Function Analysis F-Ratio: D_F = 3.812					.0004*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .09 level for acceptance of a true hypothesis

Figure 8

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p) for Fourth Grade Treatment and Control Groups Post-Test Data



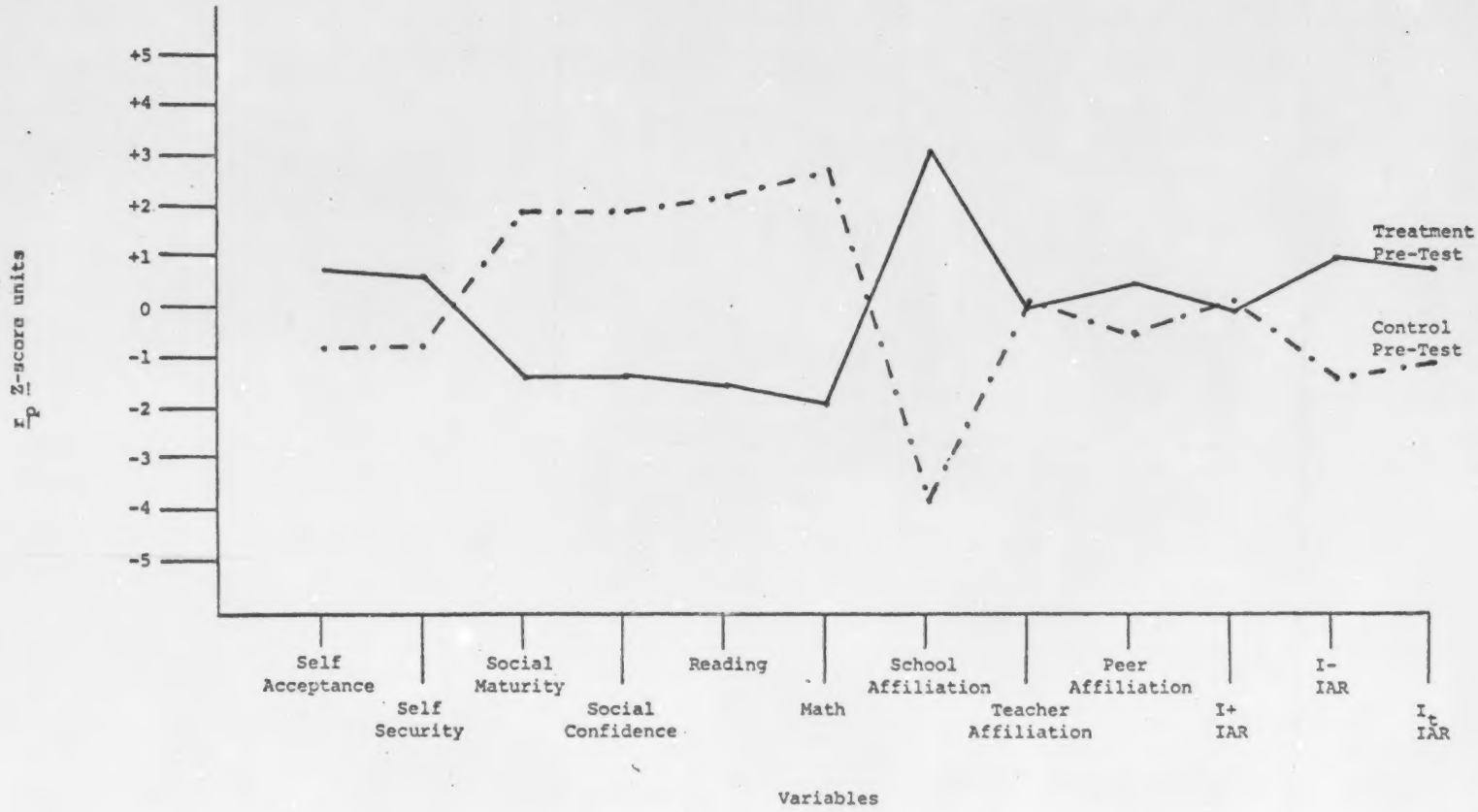
yielded results which significantly separated the groups on post-test data. See Table 9 and Figure 8 for data regarding fourth grade treatment and control groups post-test comparison.

Conclusion

Due to existing differences between the fourth grade treatment and control subjects prior to experimental treatment, the post-test comparison of data is confounded. At the beginning of the project, the control group exhibited statistically higher Social Maturity and Social Confidence; however, at the conclusion of the research period, due primarily to significant gains in these areas by the treatment group, the treatment group had surpassed the control group in Social Confidence at a significant level, and the initial difference between groups in Social Maturity was no longer significant. The significant superiority of the control group in Reading Achievement identified at pre-testing had, at the conclusion of the treatment period, been ameliorated, and the absolute difference between Mathematics scores, although still significant, had been reduced. In addition, the treatment group, at the time of post-testing scored at a significantly higher level on Self Security and on Internal Negative Intellectual-Achievement Responsibility, variables for which no statistically significant differences between groups existed at the beginning of the project. However, a statistically significant difference within the control group for Internal Positive Intellectual-Achievement Responsibility, resulting from improvement over the research period, and a decline in treatment group Peer Affiliation, to a level just short of significance, resulted in differences on post-test data, at levels approximating significance,

Figure 7

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Fourth Grade Treatment and Control Groups Pre-Test Data



in favor of the control group, although the groups were not significantly different at the beginning of the project period.

Both groups had exhibited decreases in Self Acceptance and School and Teacher Affiliation from pre- to post-testing, differences for each group in each variable reaching significance. No differences between the groups for two of these variables, Self Acceptance and Teacher Affiliation, existed either at pre- or post-testing and the treatment group continued to express significantly more positive School Affiliation at post-testing, just as at pre-testing.

The Cattell Index of Profile Similarity and Discriminant Function each indicated significant differences between the groups before and after the research period. School Affiliation, Mathematics Achievement and Social Confidence contributed to the Discriminant Root at both points of analysis. But, Reading Achievement and Social Maturity, both of which contributed to the pre-test Discriminant Root (and were higher for the control group at pre-testing) no longer contributed substantially to the Discriminant Root at post-testing, whereas, Self Security, which had been a primary factor of the Discriminant Root at pre-testing, was a principal contributor at post-testing and was, at that time reversed, that is higher for the treatment subjects than for control subjects.

In view of existing composite differences between treatment and control subjects at the beginning of the research period, post-test evaluation of the composite null hypothesis is contraindicated. However, the null hypothesis can be assessed, in some cases cautiously so, for most of the univariates.

Rejection of the null hypotheses for Self Security and Internal

Negative Intellectual Achievement Responsibility is clearly evidenced, the alternative hypotheses of which both favored the treatment subjects. Implication for rejection of the null hypotheses also seems warranted for Social Confidence, since the treatment group mean for this variable was initially significantly below that of the control group, but at the conclusion of the project significantly above the control group. This reversal in position for Social Confidence was due to significant gains by the treatment subjects over the research period, with no corresponding gain, rather a mild decline, by the control subjects.

Although the null hypotheses cannot be rejected, comparative results from analyses of Reading Achievement and Social Maturity favor the treatment group in that for each of these variables the control group was found to be significantly higher prior to the treatment period, but for which no significant differences were found between the groups at the conclusion of the treatment program. This phenomenon was due to significant gains by the treatment groups in these variables over the treatment period, coupled with gains by the control subjects, but to degrees short of statistical significance.

Hypothesis II: Sixth Grade

No statistically significant differences exist between students who participated in the Human Development Program and student who did not participate in the program in:

1. Affect (self acceptance, self security, social maturity, and self confidence).

2. Cognition (reading achievement and mathematics achievement).

3. Confluence (school affiliation, teacher affiliation, peer affiliation, and internal positive, internal negative, and total internal intellectual-achievement responsibility).

Indirect Evaluation

Treatment Group Pre- to Post-Test Evaluation

1. Affective Variables: Analysis of variance for the sixth grade treatment group on affective dimensions indicates a significant difference, lower at post-testing, in Self Security ($F = 14.2662$; $p < .0005$), and a gain in Social Maturity to a level approaching a significant difference ($F = 3.4779$; $p > .0616$). No differences in Self Acceptance ($F = .3778$; $p > .5473$) or in Social Confidence ($F = .3507$; $p > .5621$) were discovered.

2. Cognitive Variables: The Reading Achievement of the treatment group improved to a level of significance from pre- to post-testing ($F = 3.7081$; $p < .0537$), but Mathematics Achievement remained at approximately the same level ($F = .7732$; $p > .6149$).

3. Confluent Variables: Among confluent variables at the sixth grade level, only Teacher Affiliation was significantly different between treatment pre-test and post-test scores ($F = 12.0051$; $p < .0011$), a positive movement over the period, although Internal Positive Intellectual-Achievement Responsibility increased from pre- to post-testing, resulting in a difference at a level approaching statistical significance ($F = 3.3199$; $p > .0678$). School Affiliation ($F = 1.0884$; $p > .2996$), Peer Affiliation ($F = .1355$; $p > .7147$), IAR I- ($F = .3714$; $p > .5507$), and IAR I_t ($F = .2368$; $p > .6332$) were not consistently or significantly modified over the treatment period.

4. Composite: Cattell analysis (r_p = -.559; p < .01) and Discriminant Function Analysis (F = 4.145; p < .0001) resulted in significant differences among the data sets of the treatment group. The Cattell profile indicated disimilarity in Self Security, Teacher Affiliation, Reading Achievement, Social Maturity, and Internal Positive Intellectual-Achievement Responsibility. The Discriminant Root correlated moderately in the negative direction with Self Security (r = -.5883) and in the positive direction with Teacher Affiliation (r = .5449).

5. Summary: Statistical analysis of testing prior to and at the conclusion of the research period revealed significant differences in three sixth grade treatment group univariates, Self Security, Reading Achievement, and Teacher Affiliation, and Differences approaching significance in two others, Social Maturity and Internal Positive Intellectual-Achievement Responsibility. Each scale showed an increase over the period except for Self Security. Both composite analyses, Cattell and Discriminant, significantly separated pre- and post-test scores, based primarily on Self Security and Teacher Affiliation. See Table 10 and Figure 9 for data regarding treatment group pre- and post-test evaluation.

Control Group Pre- to Post-Test Evaluation

1. Affective Variables: For the control group, Self Acceptance (F = 7.2594; p < .0085) and Self Security (F = 4.1646; p < .0421) each decreased to a level of significant difference over the research period; whereas, Social Maturity improved to a degree just below significance

yielded results which significantly separated the groups on post-test data. See Table 9 and Figure 8 for data regarding fourth grade treatment and control groups post-test comparison.

Conclusion

Due to existing differences between the fourth grade treatment and control subjects prior to experimental treatment, the post-test comparison of data is confounded. At the beginning of the project, the control group exhibited statistically higher Social Maturity and Social Confidence; however, at the conclusion of the research period, due primarily to significant gains in these areas by the treatment group, the treatment group had surpassed the control group in Social Confidence at a significant level, and the initial difference between groups in Social Maturity was no longer significant. The significant superiority of the control group in Reading Achievement identified at pre-testing had, at the conclusion of the treatment period, been ameliorated, and the absolute difference between Mathematics scores, although still significant, had been reduced. In addition, the treatment group, at the time of post-testing scored at a significantly higher level on Self Security and on Internal Negative Intellectual-Achievement Responsibility, variables for which no statistically significant differences between groups existed at the beginning of the project. However, a statistically significant difference within the control group for Internal Positive Intellectual-Achievement Responsibility, resulting from improvement over the research period, and a decline in treatment group Peer Affiliation, to a level just short of significance, resulted in differences on post-test data, at levels approximating significance,

Table 10

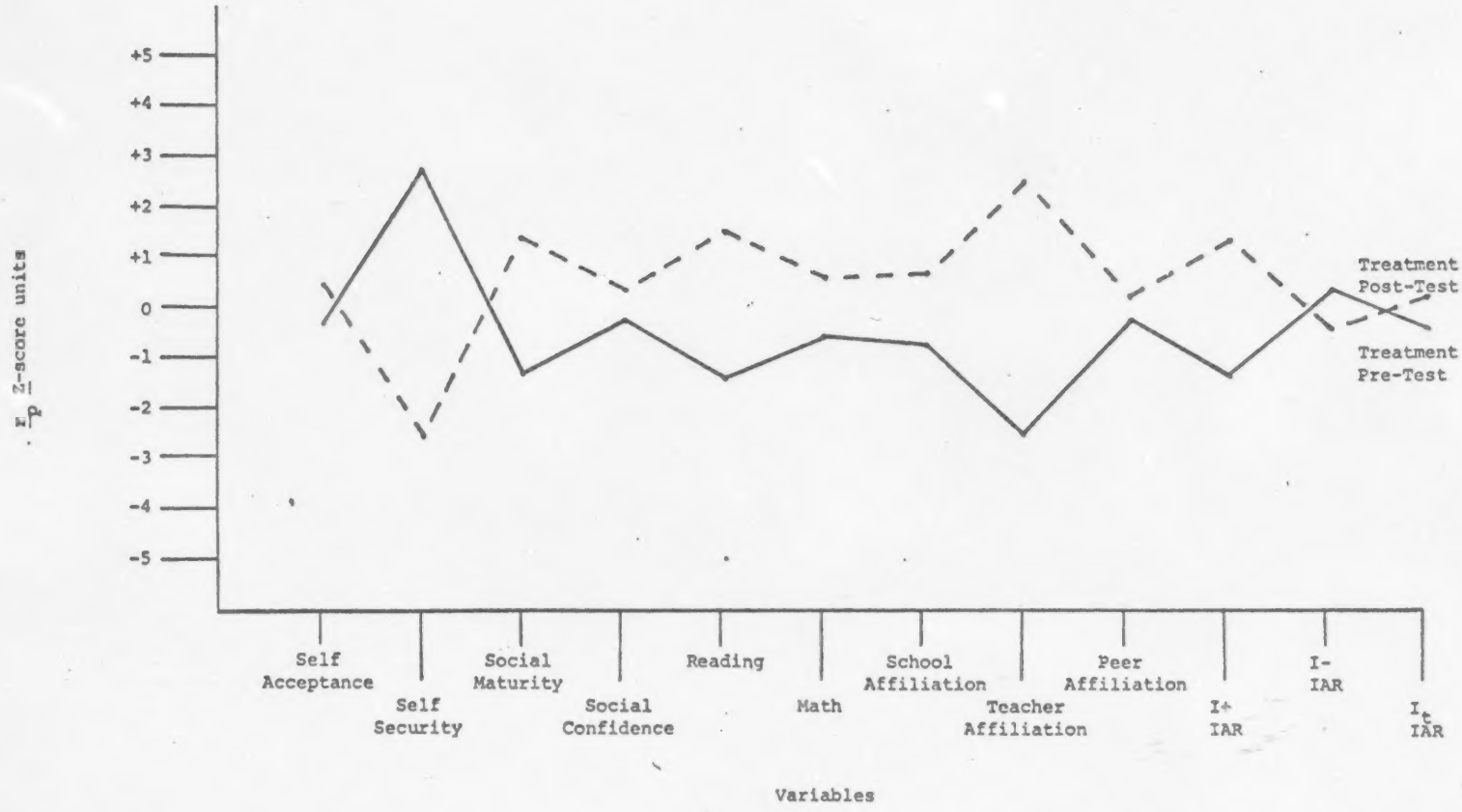
Comparison of Sixth Grade Treatment Group on Pre- and Post-Test Data by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Treatment Pre-Test			Treatment Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	P
Affective	Self Acceptance	50.75	11.60	-0.435	51.79	4.08	0.435	.1019	.3778	.5473
	Self Security	54.55	9.13	2.671	49.02	5.49	-2.671	-.5883	14.2662	.0005*
	Social Maturity	47.51	11.63	-1.319	51.00	7.10	1.319	.3047	3.4779	.0616
	Social Confidence	48.42	8.05	-0.419	49.23	5.88	0.419	.0982	.3507	.5621
Cognitive	Reading Achievement	405.68	68.80	-1.362	431.53	69.41	1.362	.3143	3.7081	.0537*
	Math Achievement	382.32	58.22	-0.622	392.42	59.96	0.622	.1455	.7732	.6149
Confluent	School Affiliation	51.32	13.37	-0.738	53.45	6.53	0.738	.1724	1.0884	.2996
	Teacher Affiliation	46.62	12.76	-2.450	53.30	5.84	2.450	.5449	12.0051	.0011*
	Peer Affiliation	50.79	9.29	-0.260	51.34	5.56	0.260	.0611	.1355	.7147
	Internal Positive IAR	13.28	1.95	-1.288	14.00	2.10	1.288	.2979	3.3199	.0678
	Internal Negative IAR	10.85	2.34	0.431	10.51	3.31	-0.431	-.1010	.3714	.5507
	Total Internal IAR	24.13	3.48	-0.363	24.51	4.07	0.363	.0807	.2368	.6332
					Cattell Index of Profile Similarity Coefficient: r_p = -.559					.01*
					Discriminant Function Analysis F-Ratio: D_F = 4.145					.0001*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .09 level for acceptance of a true hypothesis

Figure 9

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Sixth Grade Treatment Group Pre- and Post-Test Data



($F = 3.6084$; $p > .0580$). The Social Confidence of the control group was not, however, appreciably changed from pre- to post-testing ($F = .8339$; $p > .6330$).

2. Cognitive Variables; Although improvements in Reading and Mathematics Achievement were realized for the control subjects over the research period, neither reached a level of significant difference ($F = 1.3491$; $p > .2475$; $F = 1.3084$; $p > .2550$, respectively).

3. Confluent Variables: A significant difference was found between sixth grade pre- and post-test control group scores on Peer Affiliation ($F = 6.2316$; $p < .0140$), as a result of more positive affiliation at the end of the period than at the beginning. No other confluent variables exhibited a difference of significance over the period; School Affiliation ($F = .1873$; $p > .6702$), Teacher Affiliation ($F = 2.0709$; $p > .1504$), IAR I+ ($F = .0111$; $p > .9127$), IAR I- ($F = .1517$; $p > .7001$), and IAR I_t ($F = .1547$; $p > .6974$). Additionally, the probability level of control group Internal Positive Intellectual-Achievement Responsibility suggests significant similarity of this variable for control subjects at pre- and post-testing.

4. Composite: The Cattell Index ($r_p = -.414$; $p < .01$) and the Discriminant Function Analysis ($F = 3.841$; $p < .0003$) each indicated that the control group pre- and post-test profiles were significantly different. Correlations with the Discriminant Root included a moderate negative coefficient for Self Acceptance ($r = -.4571$) and for Self Security ($r = -.3527$) and positive coefficients for Peer Affiliation ($r = .4260$) and Social Maturity ($r = .3294$). These same variables contributed most substantially to profile separation by the Cattell Index.

5. Summary: Three sixth grade control group criterion variables underwent change over the research period of sufficient degree as to result in significant difference in pre- and post-test scores, an increase in Peer Affiliation, and decreases in Self Acceptance and Self Security. Social Maturity improved to a degree approximating significance. Significant profile differences between the control group pre-test and post-test were identified by both the Cattell and Discriminant programs, primarily as a result of the Self Acceptance, Self Security, Peer Affiliation, and Social Maturity scales. Table 11 summarizes data from analysis of the sixth grade control group pre- and post-test scores by the Cattell Index of Profile Analysis and Discriminant Function Analysis. Figure 10 presents the z-score polygon from Cattell analysis of pre- and post-test scores.

Direct Evaluation

Treatment and Control Group Pre-Test Evaluation

1. Affective Variables: Evaluation of pre-test affective scores revealed a significantly higher level of Self Security ($F = 4.3647$; $p < .0371$) for the treatment group; whereas, the control group Self Acceptance ($F = 3.2547$; $p > .0709$) was at a higher level, approaching statistical significance. Neither Social Maturity ($F = 1.3235$; $p > .2516$) nor Social Confidence ($F = .0983$; $p > .7529$) were found to be statistically different.

2. Cognitive Variables: No significant differences between the two sixth grade groups were established for either Reading ($F = 1.2519$; $p > .2652$) or Mathematics ($F = 1.5415$; $p > .2151$) Achievement.

Table 11

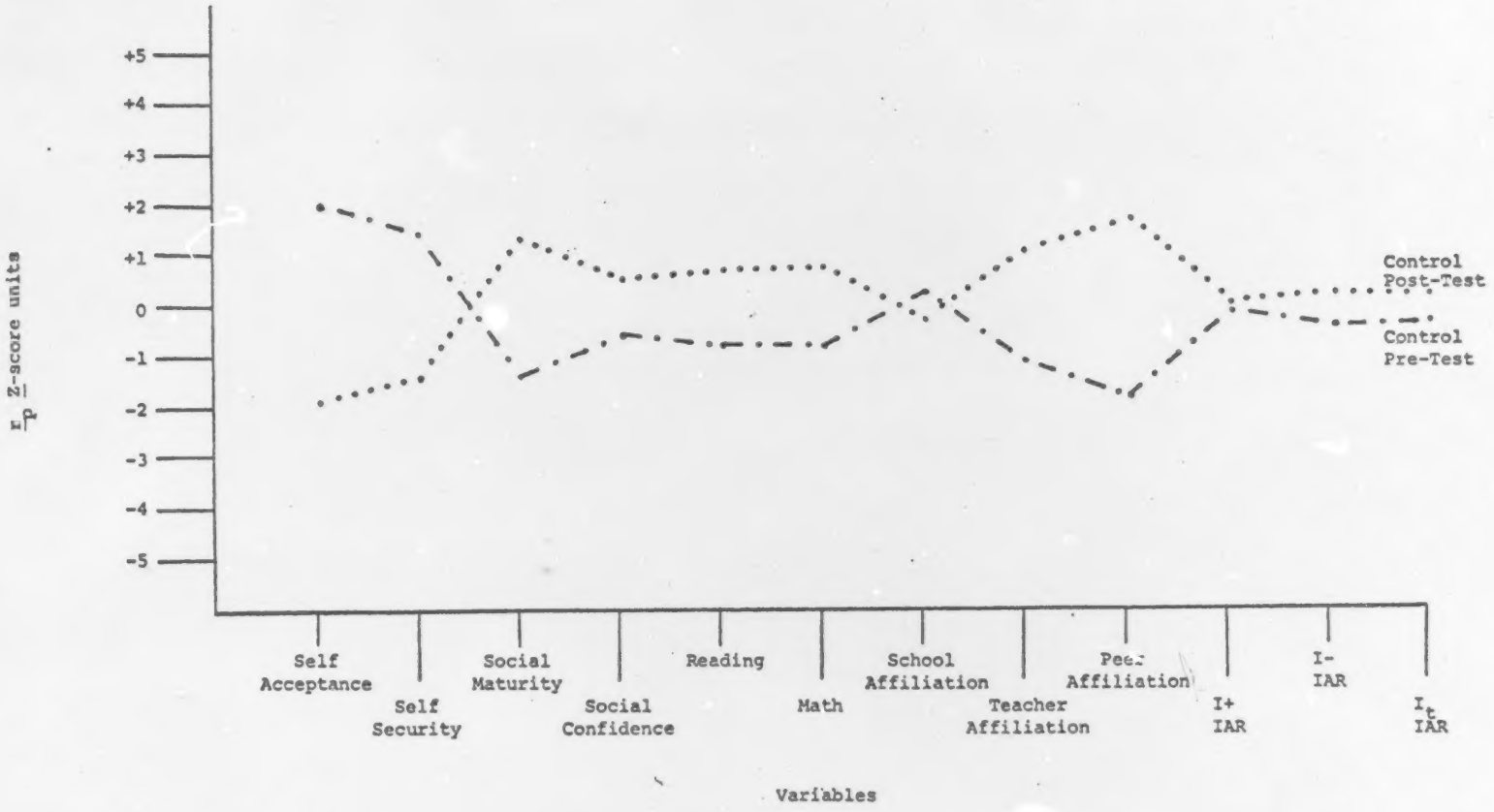
Comparison of Sixth Grade Control Group on Pre- and Post-Test Data
By the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Control Pre-Test			Control Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	P
Affective	Self Acceptance	54.65	8.29	1.905	50.50	5.12	-1.905	-.4571	7.2594	.0085*
	Self Security	50.57	9.00	1.443	47.32	4.52	-1.443	-.3527	4.1646	.0421*
	Social Maturity	50.17	10.26	-1.343	53.57	4.79	1.343	.3294	3.6084	.0580
	Social Confidence	49.00	9.94	-0.646	50.60	4.90	0.646	.1611	.8339	.6330
Cognitive	Reading Achievement	388.77	76.36	-0.821	409.30	81.61	0.821	.2042	1.3491	.2475
	Math Achievement	366.25	66.28	-0.809	382.42	68.01	0.809	.2012	1.3084	.2550
Confluent	School Affiliation	52.87	11.24	0.306	51.95	7.52	-0.306	-.0767	.1873	.6702
	Teacher Affiliation	51.00	10.95	-1.018	53.87	6.30	1.018	.2519	2.0709	.1504
	Peer Affiliation	50.50	8.93	-1.765	54.85	6.46	1.765	.4260	6.2316	.0140*
	Internal Positive IAR	13.12	1.94	-0.074	13.17	2.31	0.074	.0186	.0111	.9127**
	Internal Negative IAR	10.32	2.51	-0.275	10.55	2.66	0.275	.0690	.1517	.7001
	Total Internal IAR	23.45	3.26	-0.278	23.77	4.09	0.278	.0697	.1547	.6974
					Cattell Index of Profile Similarity Coefficient: r_p = -.414					.01*
					Discriminant Function Analysis F-Ratio: D_F = 3.841					.0003*

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .09 level for acceptance of a true hypothesis

Figure 10

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Sixth Grade Control Group Pre- and Post-Test Data



3. Confluent Variables: Significant differences were not established for any confluent variables, although Teacher Affiliation ($F = 3.0226$; $p > .0817$) approached significance, with control scores higher than treatment scores. School Affiliation ($F = .3525$; $p > .5612$), Peer Affiliation ($F = .0234$; $p > .8733$), IAR I+ ($F + .1511$; $p > .7005$), IAR I- ($F = 1.0758$; $p > .3029$), and IAR I_t ($F = .9719$; $p > .6721$) were not of statistical difference.

4. Composite: Analysis of profile data by the Cattell Index of Profile Similarity ($r_p = -.220$; $p > .10$) and Discriminant Function ($F = 1.408$; $p > .1792$) revealed that the treatment and control groups were not statistically dis-similar at the beginning of the research period.

5. Summary: The sixth grade treatment and control subjects were found to be similar on all pre-test data, with the exception of Self Security, a statistically significant difference in favor of the treatment group, and Self Acceptance and Teacher Affiliation, higher for the control group, but not to a significant degree. The sixth grade treatment and control groups were judged; therefore, to be of sufficient similarity except for Self Security, at pre-testing as to permit unencumbered post-test comparability. Table 12 and Figure 11 summarize statistical analyses of the sixth grade research groups.

Treatment and Control Groups Post-Test Evaluation

1. Affective Variables: Among post-test affective variables at the sixth grade level a significant difference between treatment and control groups was found only for Social Maturity ($F = 3.9124$; $p > .0481$), control Group Social Maturity at a higher level than for

Table 12

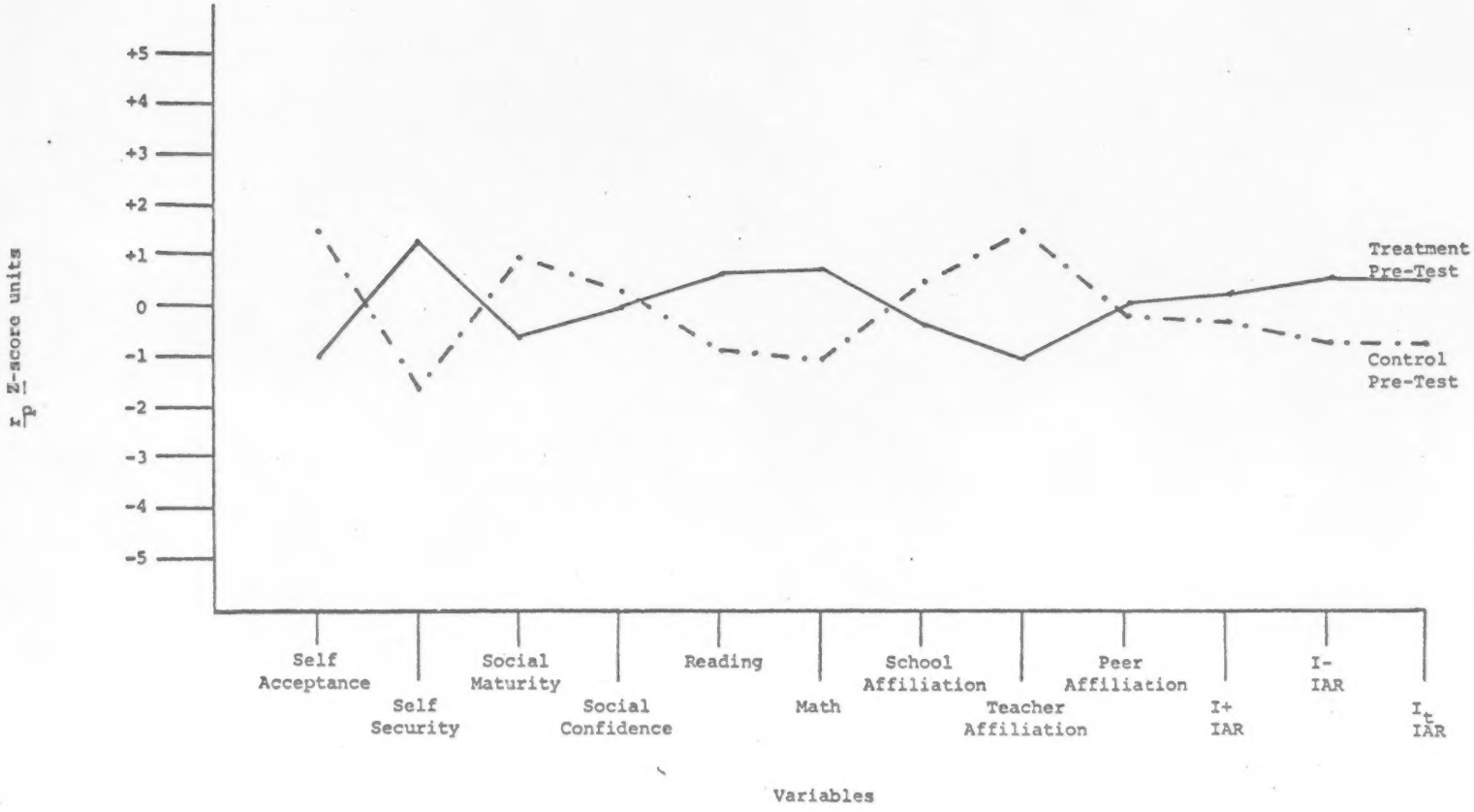
Comparison of Sixth Grade Treatment and Control Groups on Pre-Test Data
by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Treatment Pre-Test			Control Pre-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	P
Affective	Self Acceptance	50.75	11.60	-1.108	54.65	8.29	1.468	-.4450	3.2547	.0709
	Self Security	54.55	9.13	1.283	50.57	9.00	-1.700	.5123	4.3647	.0371*
	Social Maturity	47.51	11.63	-0.707	50.17	10.26	0.936	-.2867	1.3235	.2516
	Social Confidence	48.42	8.05	-0.193	49.00	9.94	0.255	-.0786	.0933	.7529
Cognitive	Reading Achievement	405.68	68.80	0.687	388.77	76.36	-0.911	.2789	1.2519	.2652
	Math Achievement	382.32	58.22	0.763	366.25	66.28	-1.011	.3090	1.5415	.2151
Confluent	School Affiliation	51.32	13.37	-0.365	52.87	11.24	0.483	-.1487	.3525	.5612
	Teacher Affiliation	46.62	12.76	-1.068	51.00	10.95	1.415	-.4293	3.0226	.0817
	Peer Affiliation	50.79	9.29	0.094	50.50	8.93	-0.124	.0383	.0234	.8733
	Internal Positive IAR	13.28	1.95	0.239	13.12	1.94	-0.316	.0974	.1511	.7005
	Internal Negative IAR	10.85	2.34	0.637	10.32	2.51	-0.844	.2598	1.0758	.3029
	Total Internal IAR	24.13	3.48	0.591	23.45	3.26	-0.783	.2461	.9719	.6721
					Cattell Index of Profile Similarity Coefficient: r_p = -.220					>.10
					Discriminant Function Analysis F-Ratio: D_F = 1.408					.1792

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .09 level for acceptance of a true hypothesis

Figure 11

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Sixth Grade Treatment and Control Groups Pre-Test Data



the treatment group. Self Acceptance ($F = 1.8370$; $p > .1753$), Self Security ($F = 2.5202$; $p > .1119$), and Social Confidence ($F = 1.4302$; $p > .2329$) were not significantly different between the groups.

2. Cognitive Variables: No significant differences existed between treatment and control subjects on post-test cognitive variables; Reading Achievement ($F = 2.0088$; $p > .1561$) and Mathematics Achievement ($F = .4564$; $p > .5081$).

3. Confluent Variables: Control group post-test Peer Affiliation was found to be significantly more positive ($F = 7.9118$; $p < .0061$) than treatment group Peer Affiliation. Although no significant differences were identified for School Affiliation ($F = 1.0593$; $p > .3068$), Teacher Affiliation ($F = .2055$; $p > .6561$), or IAR I_t ($F = .7400$; $p > .6037$), the treatment group's Internal Positive Intellectual-Achievement Responsibility was higher than for the control group, at a level near statistical significance, with $F = 3.2252$; $p > .0722$. The Internal Negative Intellectual-Achievement Responsibility of the two groups was found to be significantly similar at post-testing ($F = .0040$; $p > .9482$) in support of a true null hypothesis.

4. Composite: The Cattell coefficient for post-test profiles indicated a significant dis-similarity between groups ($r_p = -.390$; $p < .02$); however, the difference was not substantiated by the Discriminant Function ($F + 1.718$; $p > .0779$), although separation by D_F approached significance. The Cattell profile was most distinctively dis-similar for Peer Affiliation, but also dis-similar for Internal Positive Intellectual-Achievement Responsibility, Self Security, Self Acceptance, and Social Maturity.

5. Summary: At the conclusion of the research period, the sixth grade control group exhibited significantly more positive Social Maturity, as well as Peer Affiliation, than treatment subjects. The treatment group's Internal Positive Intellectual-Achievement Responsibility was higher than for the control group, at a level approximating significance. Control and treatment Internal Negative Intellectual-Achievement Responsibility was, however, statistically significant in similarity. There were no significant differences among other post-test univariates. Although the Cattell Index of Profile Similarity indicated a dis-similarity between groups, the Discriminant Function was unable to separate the data sets at a significant level. Table 13 and Figure 12 provide data regarding comparison of the sixth grade treatment and control groups on post-test scores.

Conclusion

The significantly higher level of Self Security exhibited by the treatment group at pre-testing was ameliorated during the treatment period, even though both the treatment and control groups exhibited decreases, at levels of statistical significance, over the research period. Differences in Teacher Affiliation and Self Acceptance, for which the control group exhibited higher scores on pre-test data at levels nearing significance, were substantially reduced and did not approach significance on post-test data. The shift in these two scales over the period were due to a significant improvement in treatment group Teacher Affiliation and a significant decline in control group Self Acceptance. However, at the conclusion of the treatment period, the control group's improvement in Social Maturity and Peer Affiliation

Table 13

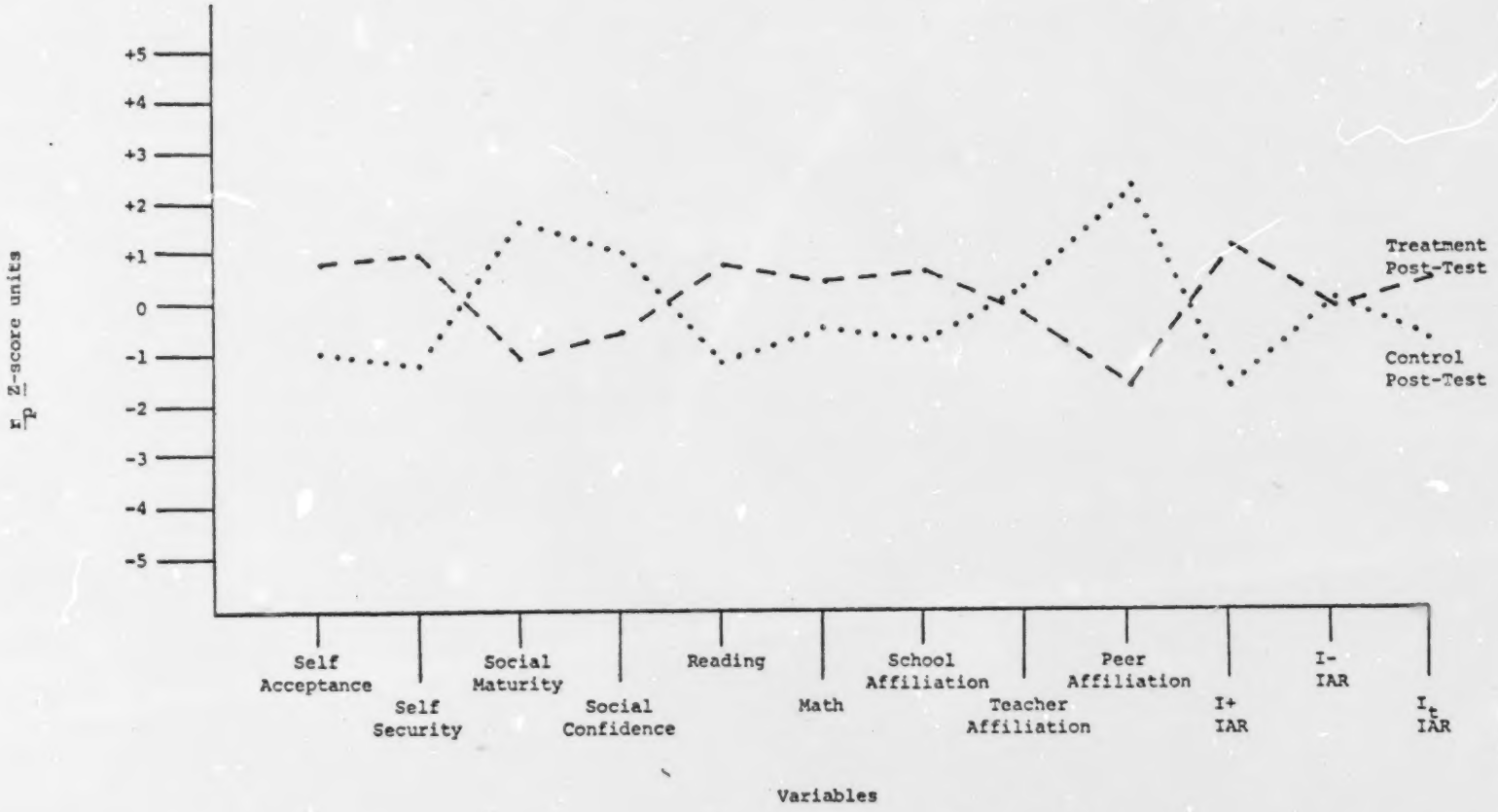
Comparison of Sixth Grade Treatment and Control Groups on Post-Test Data by the Cattell Index of Profile Similarity (r_p) and Discriminant Function Analysis (D_F)

		Treatment Post-Test			Control Post-Test					
Category	Variable	M	SD	r_p Z-score	M	SD	r_p Z-score	D_R	F	p
Affective	Self Acceptance	51.79	4.08	0.833	50.50	5.12	-1.103	.3107	1.8370	.1753
	Self Security	49.02	5.49	0.975	47.32	4.52	-1.292	.3626	2.5202	.1119
	Social Maturity	51.00	7.10	-1.215	53.57	4.79	1.610	-.4485	3.9124	.0481*
	Social Confidence	49.23	5.88	-0.735	50.60	4.90	0.973	-.2748	1.4302	.2329
Cognitive	Reading Achievement	431.53	69.41	0.871	409.30	81.61	-1.154	.3246	2.0088	.1561
	Math Achievement	392.42	59.96	0.415	383.42	68.01	-0.550	.1560	.4564	.5081
Confluent	School Affiliation	53.45	6.53	0.632	51.95	7.52	-0.838	.2370	1.0573	.3068
	Teacher Affiliation	53.30	5.84	-0.278	53.87	6.30	0.369	-.1048	.2055	.6561
	Peer Affiliation	51.34	5.56	-1.728	54.85	6.46	2.289	-.6247	7.9118	.0061*
	Internal Positive IAR	14.00	2.10	1.103	13.17	2.31	-1.462	.4087	3.2253	.0722
	Internal Negative IAR	10.51	3.31	-0.039	10.55	2.66	0.052	-.0147	.0040	.9482**
	Total Internal IAR	24.51	4.07	0.528	23.77	4.09	-0.700	.1984	.7400	.6037
					Cattell Index of Profile Similarity Coefficient: r_p = -.390					.02*
					Discriminant Function Analysis F-Ratio: D_F = 1.718					.0779

*statistically significant at or above the .05 level for rejection of null hypothesis
**statistically significant at or above the .09 level for acceptance of a true hypothesis

Figure 12

Z-Score Polygon Based on the Cattell Index of Profile Similarity (r_p)
for Sixth Grade Treatment and Control Groups Post-Test Data



resulted in significantly higher scores on these variables than for the treatment group. The sixth grade treatment group had gained in Internal Positive Intellectual-Achievement Responsibility to an extent which was almost significant and which produced a post-test difference between the groups on this scale approaching significance. Internal Negative Intellectual-Achievement Responsibility was significantly similar. The Cattell coefficient did not identify pre-test group profiles as significantly dis-similar, but found post-test profiles significantly dis-similar. The Discriminant Function separated neither pre- nor post-test scores at a significant level, although post-test scores were more dis-similar than pre-test scores.

In conclusion, rejection of the null hypothesis is in order only for the Social Maturity and Peer Affiliation variables and the variable profile, as computed by the Cattell Index, each of which were more positive for the control group than for the treatment group for sixth grade subjects, and for Internal Positive Intellectual-Achievement Responsibility, more positive for the treatment subjects than for the control subjects. Comparative analyses of Self Security favors the control group, in that this variable evidenced a change from a difference of significance at pre-testing at which point treatment subject scores were higher, to a non-significant difference between groups at post-testing. Finally, a true null hypothesis was accepted for Internal Negative Intellectual-Achievement Responsibility.

Hypothesis III: Teachers

No statistically significant differences exist between:

1. The pre- and post-ratings of teachers who participated in the project in regard to verbal behavior patterns within their respective classrooms.

2. The classroom teaching style and the Magic Circle teaching style of teachers participating in the project.

Direct Evaluation

Pre-experimental Comparison of Teacher Behavior: Circle versus Classroom

Comparison was made of the classroom behavior and Magic Circle behavior of teachers in the study early in the academic year. Results from this comparison indicated that although classroom and Circle behaviors were in fact different, this difference was not statistically significant. Data in connection with this aspect of teacher evaluation are found in Table 14.

Pre- and Post-experimental Analyses of Teacher Behavior: Magic Circle

Comparison was made of the Magic Circle behavior of teachers in the study to determine the extent to which participation in the project over the academic year influenced their teaching style in the Circle context. Interaction analysis of this behavior indicated that some changes occurred in this regard, but not to a statistically significant degree. Data concerning this aspect of the research are found in Table 15.

Post-experimental Analysis of Teacher Behavior: Classroom versus Magic Circle

Comparison was made of the Magic Circle behavior and the classroom behavior of teachers at the completion of the project to determine the extent

to which differences in teaching style within the two contexts would be observed. No statistically significant differences were found between the two areas in this regard. Data concerning this aspect of the research are found in Table 16.

Pre- and Post-experimental Analysis of Teacher Behavior: Classroom

Comparison was made of teacher behavior within the classroom at the beginning of the study and at the end of the research period. Although changes were found to occur in the direction anticipated, the movement was not made to a statistically significant degree. Data concerning this aspect of the research are found in Table 17.

Summary

Although the authors of the Human Development Program claim that significant changes occur in teaching behavior as a result of using the Magic Circle in the classroom on a routine basis, this study was unable to substantiate such changes. Since any observed changes were not found to be to a degree which was statistically significant (.05), the two hypotheses made concerning this aspect of the research study are accepted as true.

Table 15

COMPARISON OF INTERACTION ANALYSIS RATIOS: MAGIC CIRCLE AND CLASSROOM BEGINNING OF PROJECT

	Classroom		Circle		t	p
Ratio	Mean	SD	Mean	SD		
Revised direct/indirect	.60	.16	3.08	1.33	1.94	.1
Student talk/teacher talk	.50	.11	.80	.40	.77	NS

Table 16

PRE- AND POST-INTERACTION ANALYSIS RATIOS
MAGIC CIRCLE

	Fall, 1975		Spring, 1976			
Ratio	Mean	SD	Mean	SD	t	p
Revised direct/ indirect	3.08	1.33	3.63	1.87	.26	NS
Student talk/ teacher talk	.80	.40	.62	.25	.43	NS

Table 17

COMPARISON OF INTERACTION ANALYSIS RATIOS: MAGIC CIRCLE AND CLASSROOM COMPLETION OF PROJECT

	Classroom		Circle		t	p
Ratio	Mean	SD	Mean	SD		
Revised direct/ indirect	.65	.18	3.63	1.87	1.70	.20
Student talk/ teacher talk	.50	.07	.62	.25	.31	NS

Table 18

PRE- & POST-INTERACTION ANALYSIS RATIOS
CLASSROOM

	Fall '75		Spring '76				
Ratio	Mean	SD	Mean	SD	F	t	p
Revised direct/ indirect	.60	.16	.65	.18		1.18	NS
Student talk/ teacher talk	.50	.11	.50	.07		0	NS

Conclusions

Summary evaluation of the results of statistical treatment of research data warrants the following conclusions for this study.

Second Grade

Significant Differences for Second Grade Treatment Subjects, Pre- to Post-Test

1. Self Acceptance, lower at post-testing.
2. Reading Achievement, higher at post-testing.
3. Mathematics Achievement, higher at post-testing.

4. Cattell Index of Profile Similarity.

5. Discriminant Function Analysis.

Significant Differences for Second Grade Control Subjects, Pre- to Post-Test

1. Reading Achievement, higher at post-testing.

2. Mathematics Achievement, higher at post-testing.

3. Cattell Index of Profile Similarity.

4. Discriminant Function Analysis.

Significant Differences for Second Grade Treatment and Control Subjects, Pre-Test

1. Discriminant Function Analyses.

Significant Differences for Second Grade Treatment and Control Subjects, Post-Test

1. No significant differences were found between second grade treatment and control subjects for post-test data.

Summary of Results for Second Grade Subjects

1. The null hypotheses was not rejected for any variables or for the variable set at the second grade level.

2. Reading and Mathematics Achievement were significantly higher for both treatment and control subjects at post-testing as compared to pre-test scores.

3. Self Acceptance for the treatment group was significantly lower at post-testing than at pre-testing.

4. Variable composites of both the treatment and the control group were significantly different from pre- to post-testing.

Conclusions for Second Grade Subjects

1. The "Magic Circle" apparently produced no statistically significant differences from direct comparison of treatment and control groups.

2. Both second grade research groups evidenced significant cognitive gains over the research period.

3. At the second grade level Self Acceptance, an affective variable, appears to be not facilitated, perhaps detrimentally influenced, by "Magic Circle" participation.

Fourth Grade

Significant Differences for Fourth Grade Treatment Subjects, Pre- to Post-Test

1. Self Acceptance, lower at post-testing.
2. Social Maturity, higher at post-testing.
3. Social Cofidence, higher at post-testing.
4. Reading Achievement, higher at post-testing.
5. Mathematics Achievement, higher at post-testing.
6. School Affiliation, lower at post-testing.
7. Teacher Affiliation, lower at post testing.
8. Cattell Index of Profile Similarity.
9. Discriminant Function Analysis.

Significant Differences for Fourth Grade Control Subjects, Pre- to Post-Test

1. Self Acceptance, lower at post-testing.
2. Mathematics Achievement, higher at post-testing.
3. School Affiliation, lower at post-testing.
4. Teacher Affiliation, lower at post-testing.
5. Internal Positive Intellectual-Achievement Responsibility, higher at post-testing.
6. Cattell Index of Profile Similarity.
7. Discriminant Function Analysis.

Significant Differences for Fourth Grade Treatment and Control Subjects, Pre-Test

1. Social Maturity, higher for the control group.
2. Social Confidence, higher for the control group.
3. Reading Achievement, higher for the control group.
4. Mathematics Achievement, higher for the control group.
5. School Affiliation, higher for the treatment group.
6. Cattell Index of Profile Similarity.
7. Discriminant Function Analysis.

Significant Differences for Fourth Grade Treatment and Control Subjects, Post-Test

1. Self Security, higher for the treatment group.
2. Social Confidence, higher for the treatment group.
3. Mathematics Achievement, higher for the control group.
4. School Affiliation, higher for the treatment group.
5. Internal Negative Intellectual-Achievement Responsibility, higher for the treatment group.
6. Cattell Index of Profile Similarity.
7. Discriminant Function Analysis.

Summary of Results for Fourth Grade Subjects

1. Based on pre-test similarity and post-test significant difference, the null hypotheses was rejected for Self Security and Internal Negative Intellectual-Achievement Responsibility, both of which were higher for the treatment group than for the control subjects.

2. Based on relative position by direct comparison, the null hypotheses for Social Confidence was cautiously rejected, post-test favoring the treatment group.

3. Based on relative gain by direct comparison of groups, the disposition of the treatment group was inferred to be more favorable for Reading Achievement and Social Maturity.

4. Comparison of treatment and control group variable composites was precluded due to a significant dis-similarity of the treatment and control groups present at pre-testing.

5. Both research groups exhibited declines to significant levels in Self Acceptance, School Affiliation, and Teacher Affiliation based on within group pre- to post-test data analysis.

6. Both treatment and control subjects demonstrated more positive scores in Mathematics Achievement over the research period based on within group pre- to post-test analysis.

7. Both treatment and control groups exhibited statistically dis-similar profiles based on ipsative pre- to post-test comparison for each group.

8. As a result of treatment group pre- to post-test comparison Social Maturity, Social Confidence, and Reading Achievement were found to be significantly higher at post-testing than at pre-testing.

9. Control group Internal Positive Intellectual-Achievement Responsibility was found to be significantly higher following the research period than preceding it, based on direct comparison of control group pre- and post-test scores.

Conclusions for Fourth Grade Subjects

1. Fourth Grade treatment subjects, those who participated in the "Magic Circle," appear to have experienced more favorable Self Security, Social Maturity, Social Confidence, Reading Achievement and Internal

Negative Intellectual-Achievement Responsibility than control subjects in direct pre- and post-test comparisons between the groups.

2. Both fourth grade research groups exhibited lower scores in Self Acceptance, School Affiliation and Teacher Affiliation, affective and confluent variables, but higher scores in Mathematics Achievement, a cognitive variable, over the research period. Furthermore, there were no significant differences between the groups for these variables, that is, these changes occurred without regard to group reference.

3. The treatment group, but not the control group, evidenced significant increases in Social Maturity, Social Confidence, and Reading Achievement, whereas, the control subjects, but not the treatment subjects, improved significantly in Internal Positive Intellectual-Achievement Responsibility. These results reported above, possibly indicate a tendency for the "Magic Circle" to have positive impact on affective variables, a lesser, but positive influence on cognitive variables, and differential contribution to intellectual-achievement responsibility, but no contribution to other confluent variables at the fourth grade level.

Sixth Grade

Significant Differences for Sixth Grade Treatment Subjects, Pre- to Post-Test

1. Self Security, lower at post-testing.
2. Reading Achievement, higher at post-testing.
3. Teacher Affiliation, higher at post-testing.
4. Cattell Index of Profile Similarity.
5. Discriminant Function Analyses.

Significant Differences for Sixth Grade Control Subjects, Pre- to Post-Test

1. Self Acceptance, lower at post-testing.
2. Self Security, lower at post-testing.
3. Peer Affiliation, higher at post-testing.
4. Cattell Index of Profile Similarity.
5. Discriminant Function Analysis.

Significant Differences for Sixth Grade Treatment and Control Subject, Pre-Test

1. Self Security, higher for the treatment group.

Significant Differences for Sixth Grade Treatment and Control Subjects, Post-test

1. Social Maturity, higher for the control group.
2. Peer Affiliation, higher for the control group.
3. Cattell Index of Profile Similarity.

Summary of Results for Sixth Grade Subjects

1. Based on direct comparison of sixth grade post-test data, the null hypotheses was rejected for Social Maturity and Peer Affiliation, both of which were more positive for the control subjects.

2. Based on relative position and gain by direction comparison of groups, the disposition of the control group was asserted to be more favorable than the treatment group for Self Security.

3. Composite analysis by the Cattell Index revealed a significant difference in profile shape and elevation, primarily for Peer Affiliation, Internal Positive Intellectual-Achievement Responsibility, Self Security, Self Acceptance, and Social Maturity, almost equally divided with respect to superiority. Therefore, the null hypothesis was rejected for the variable profile, but without clearcut superiority for either group.

4. Self Security was found to be statistically lower at post-testing for each group.

5. The treatment group exhibited higher post-test Reading Achievement and Teacher Affiliation in a direct comparison of pre-test and post-test scores.

6. The control subjects exhibited lower Self Acceptance, an affective measure, but higher Peer Affiliation, a confluent measure, at post-testing than at pre-testing.

7. Both groups were judged to be statistically dis-similar with respect to pre-test and post-test composite scores, as assessed by both composite analyses.

Conclusions for Sixth Grade Subjects

1. Those sixth grade subjects who did not participate in the "Magic Circle" program expressed significantly more positive Social Maturity and Peer Affiliation, as well as more favorable comparative standing for Self-Security in a direct comparison with sixth grade treatment subjects.

2. Although a significant difference between composites of the treatment and control groups' post-test data was established, neither group was consistently superior in profile shape and elevation.

3. Students who participated in the "Magic Circle" showed significant, unmatched gains in Reading Achievement, a cognitive variable, and Teacher Affiliation, a confluent variable; did not evidence a significant decline in Self Acceptance, an affective variable, as did the control subjects; but did not experience a significant gain in Peer Affiliation, a confluent variable, experienced by the control group over the research period. As with fourth grade subjects, it

appears that cognitive variables may experience the indirect positive influence of the "Magic Circle" not similarly experienced by the control group, however, other positive variable changes were not consistently associated with either of the research groups.

4. Sixth grade subjects, regardless of group, experienced, on the average a significant decrease in Self Security over the school year.

5. As with the fourth grade groups, both sixth grade groups experienced significant changes in variable sets over the research period, based on direct comparison of the pre- and post-test data of each.

Teachers

Interaction analysis of teacher behavior throughout the course of the research activities failed to discern any significant changes during this period. It appears that the extent to which teachers permitted students to talk in class and during the early Magic Circle sessions varied only to a slight degree and that although teachers tended to be less direct in the Magic Circle sessions than during classroom activities, the difference was not enough to reach significant levels. This would lead to a conclusion that at the outset, teachers behaved pretty much as one might predict and acted in the same fashion both in the Magic Circle as in class.

A similar finding was made at the conclusion of the project. In effect, teachers still tended to be less directive in Magic Circle activities, but not to a statistically significant extent. The ratio of student talk to teacher talk at the end of the project varied little from what it was initially, indicating that the teacher tended to maintain the same degree of verbal control as existed in the initial phase of the program.

When a comparison is made of teacher behavior in the initial Circle activities and those same activities at the completion of the school year, no changes are observed. From this it can be concluded that despite increased familiarity with the Human Development Program as well as assistance and guidance from advisors in the project, actual behavior in connection with the Magic Circle varied little from what it was initially. This would not be the case if indeed behavioral change on the part of the teacher actually resulted from participation in the Human Development Program.

Perhaps the most significant finding involves the classroom conduct of the teacher. If significant changes occurred as a result of participation in the Human Development Program, these changes would manifest themselves in increased openness and less autocratic behavior on the part of the teacher. Under such conditions, the ratio of student talk to teacher talk would increase and less direct control would be exerted by the teacher. The data from interaction analysis of teacher behavior did not support this premise; teachers tended to behave in the classroom at the end of the project in a manner which was substantially the same as that observed at the beginning of the year.

General Conclusions

1. Exposure of students to the "Magic Circle" at the second grade level resulted in very little differentiation from other children not participating in the program, with Self Acceptance possibly adversely affected. Significant cognitive gains for both groups in both reading and mathematics were discovered.

2. Fourth Grade "Magic Circle" participants appear to have profited in Self Security, Social Maturity, Social Confidence, Reading Achievement, and Internal Negative Intellectual-Achievement Responsibility more than their control counterparts; whereas, control subjects' Internal Positive Intellectual-Achievement Responsibility was significantly positively modified over the research period, while the treatment groups' locus of control was not. Significant declines in Self Acceptance, School Affiliation, and Teacher Affiliation were experienced at the fourth grade level, regardless of research group membership.

3. For sixth grade students, those who did not participate in the "Magic Circle" exhibited a more favorable comparison with students who did participate with regard to Social Maturity, Peer Affiliation and Self Security and exhibited a significant gain in Peer Affiliation not similarly experienced by "Magic Circle" participants. Subjects from the treatment group, however, made significant gains in Reading Achievement and Teacher Affiliation, not experienced by control subjects, and did not decline significantly in Self Acceptance as did the control group Self Security, irrespective of group membership significantly declined over the school year.

4. Teachers who participated in the project did not change significantly as a result of using the Magic Circle in their classrooms. These findings tend to negate the belief that significant personality change which would manifest itself in more democratic processes within the classroom occurs through use of the Human Development Program.

Comments and Observations

Program Enhancement

Many researchers and participants of the "Magic Circle," seem to develop an affection for the program that is somewhat resistant to refuting evidence, even their own. Nevertheless, one cannot deny the failure of this project and others to find objective evidence of the program's effectiveness. It is toward the resolution of the dilemma of a positive subjective thesis and neutral (perhaps negative) objective antithesis that the following observations and comments are directed.

Palomares (1970) in a discussion of the Human Development Program indicated that "the goal is that every teacher using the 'magic circle' can have the same kinds of interaction with children that a master teacher has every day. Another goal is that, as the children learn to articulate their feelings, the teacher will learn to know his(/her) students, and to understand and meet their needs as individuals." There are two mitigating factors which seem to preclude Palomares' expectations. Slauson (1975) feels that "gains in self concept development may be negated by unfavorable experiences outside the classroom (i.e. home life, treatment by other children), or they may be cancelled by the quality of classroom climate provided by a teacher during the remainder of the school day." In his study of the program, using "Magic Circle" and classroom interaction analysis as variables, Slauson found that "behavior in the setting associated with the Human Development Program was significantly different from that of the same teachers in the regular classroom" It was in fact evident to the con-

sultants who visited the treatment school during the research period that the "Magic Circle" atmosphere and interaction were, for the majority of teachers, substantially different (of higher quality) from the remainder of classroom activities.

If, then, the "Magic Circle" remains a discontinuous part of the school day, one would question the logic that the 20-minute session, however technically perfect, can be of sufficient impact as to neutralize or override the summation of all other detrimental personal experiences which impinge upon the child, particularly when a portion of these detracting experiences occur in the same classroom and in interaction with the same person acting as the "circle" facilitator. Such a situation may, in fact, be counter productive in that it may encourage acquisition of differential responses or stimulus discrimination, that is, responses in the "Magic Circle" setting may become conditioned to present themselves in that situation only.

Of similar result is the failure of the program itself, except in a few instances, (for example, conflict resolution) to be overt in encouraging participants to process "circle" activities or utilize "circle" learnings outside the immediate "Magic Circle" environment. Such lack of generalized application fails to utilize the widely acknowledged learning principle that individuals learn best when the learning is successfully applied over a variety of situations.

Another program inadequacy with regard to neglect of learning principles is the infrequent creation of an adequate anticipatory set among participants prior to the "circle" activity, that is, stimulation which would prepare students for the activity's significance rather than assuming the pene-

trating insight from elementary children that is sometimes necessary in "circle" review and summary to identify the learning gain during the activity. In keeping with program philosophy, however, care needs to be taken that the anticipatory set so created does not specify the specific content of learning, but does identify the proposed nature of the learning, thus leaving individual interpretation and significance to each participant.

Finally, Martorella (1975) in a review of the "Magic Circle" and three other affective curricula expressed concern regarding the program's eclectic approach. The danger of such an eclectic educational or psychological program is associated with the lack of philosophical, theoretical, and methodological consistency, a factor contributing to possible confusion and uncertainty in both the facilitator and group participants and leading to difficulties in fully integrating the activities of such an approach. Therefore, in its efforts to present a broad range of activities in a variety of ways the Human Development Program may be sacrificing peak efficiency for each activity resulting in collective detriment for all.

Other Observations

Miscellaneous observations derived from this research include:

1. Gains in cognitive variables, irrespective of grade level or research group, indicate that significant academic progress is occurring at the lower-, mid-, and upper-grade levels of both of the research schools.

2. The susceptibility of the fourth grade subjects, in comparison to second and sixth graders, to change with regard to affective and confluent variables may indicate that this grade level exhibits the greatest degree of developmental readiness for affective intervention for elementary school children.

3. Due to the proliferation of educational curricula and the unsubstantiated claims of effectiveness, perhaps it is time to require authors of these programs to present evidence of program effectiveness, much in the manner as test validity and reliability, with an explicit statement of methodology, analysis, and results to accompany the program manual.

Recommendations for Further Study

As a result of the conclusions and observations garnered during this research, the following considerations are proposed in guiding further research in this area.

1. Perhaps our concern with this and similar affective programs has been with evaluating product rather than process. An alternative question for affective research might be: Do children learn an interactional, introspective, problem-solving, or decision-making process through participation in the Human Development Program (rather than acquiring as a product more positive adjustment or higher academic achievement)?

2. A great variety of differential analyses have yet to be done with the program. For instance: Is the Human Development Program more effective for children who express affinity for the program in comparison with those who do not? (Research involving variables of sex, race, grade level, socioeconomic livel, level of intelligence, and other factors such as that illustrated above are needed to determine to what degree the Human Development Program is in actuality an effective program for the entire classroom population or sub-group thereof.)

3. In view of the observation that not all children profit from, nor do all children desire to participate in, "Magic Circle," a research project using "Magic Circle" participation as a Premack contingency and comparing

participants with non-participants might yield additional evidence as to the relative effectiveness of the program.

4. Finally, and most importantly, few conclusions regarding the Human Development Program can be drawn in the absence of a well planned, long term, broadly based, multivariate field study, with appropriate research control and follow-up.

BIBLIOGRAPHY

Anandam, K., Davis, M., & Poppen, W. A. Feelings...to fear or to free? Elementary School Guidance & Counseling, 1971, 5, 181-189.

Aubrey, R. F. Issues and criteria in developing psychological education programs for elementary schools. Counselor Education & Supervision, 1975, 14, 268-276.

Ball, G. (ed.) An overview of the human development program. La Mesa, Cal.: Human Development Training Institute, Inc., 1974. (a)

Ball, G. Human development program level vi activity guide. La Mesa, Cal.: Human Development Training Institute, Inc., 1974. (b)

Barker, H. R. Jr. Behavioral sciences statistics program library. University, Ala.: Author, 1973.

Bessell, H. Human development program level ii activity guide. La Mesa, Cal.: Human Development Training Institute, Inc., 1972.

Bessell, H. Human development program level iv activity guide. La Mesa, Cal.: Human Development Training Institute, Inc., 1972.

Bessell, H. & Palomares, U. Methods in human development: Magic circle theory manual (1973 revision). La Mesa, Cal.: Human Development Training Institute, 1973.

Bledsoe, J. C. & Garrison, K. C. The self concepts of elementary school children in relation to their academic achievement, intelligence, interests, and manifest anxiety. Athens, Georgia: University of Georgia, 1962. Cooperative Research Project No. 1008, U. S. Office of Education, Department of Health, Education, and Welfare.

Castillo, G. A. Left-handed teaching: Lessons in affective education. New York: Praeger, 1974.

Chase, L. The other side of the report card: A how-to-do-it program for effective education. Pacific Palisades, Cal.: Goodyear Publishing Co., Inc., 1975.

Colley, S. Personal education. Personnel & Guidance Journal, 1975, 53 610-614.

Crandall, V. C., Katkovsky, W., & Crandall, V. J. Children's beliefs in their own control of reinforcements in intellectual-academic achievement situations. Child Development, 1965, 36, 91-109.

Crow, M. L. A comparison of three group counseling techniques with sixth graders. Elementary School Guidance and Counseling, 1971, 6, 37-42.

Darrigrand, G. E. & Gum, M. E. A comparison of the effects of two methods of developmental guidance on the self-concept, peer relationships and school attitudes of second grade children. In Additional Studies in Elementary School Guidance: Psychological Education Activities Evaluated. Milker, G. D. (ed.). St. Paul, Minnesota: Pupil Personnel Services Section, Division of Instruction, 1973.

Derell, G. R. A human relations class in the middle school. School Counselor, 1970, 17, 384-387.

Dimick, K. M. & Huff, V. E. Child counseling. Dubuque, Iowa: William C. Brown, 1970.

Dinkmeyer, D. Developmental counseling in the elementary school. Personnel & Guidance Journal, 1966, 45, 262-266.

Dinkmeyer, D. Developmental group counseling. Elementary School Guidance & Counseling, 1970, 4, 267-272.

Dinkmeyer, D. C. Guidance and the classroom teacher. In Guidance and counseling in the elementary school: Readings in theory and practice. Dinkmeyer, D. C. (ed). New York: Holt, Rinehart & Winston, 1968, 167-175.

Doverspike, J. E. Counseling with younger children: Four fundamentals. Elementary School Guidance & Counseling, 1970, 5, 53-58.

Doverspike, J. E. GUICO: A synthesized group approach. Personnel & Guidance Journal, 1971, 50, 182-187.

Dreikers, R. & Sonstegard, M. Rationale of group counseling in Guidance and counseling in the elementary school: Readings in theory and practice. Dinkmeyer, D. C. (ed.). New York: Holt, Rinehart & Winston, 1968, 278-287.

Elbert, W. & Whitfield, B. Kids do-a-thing: A group guidance program with pre-school children. Unpublished Report, Human Development Training Institute, San Diego, Cal., 1970.

Eldridge, M. S., Barcikowski, R. S. & Witmer, J. M. Effects of DUSO on the self-concepts of second grade students. Elementary School Guidance & Counseling, 1973, 7, 256-260.

Fearn, L., McCabe, R. E. & Ball, G. Human development program supplemental idea guide. La Mesa, Cal.: Human Development Training Institute, Inc., 1975.

Felker, D. W., Stanwyck, D. J. & Kay, R. S. The effects of a teacher program in self concept enhancement on pupils' self-concept, anxiety, and intellectual achievement responsibility. Journal of Educational Research, 1973, 66, 443-445.

Gerler, E. R. Jr. The magic circle program: how to involve teachers. Elementary School Guidance & Counseling, 1973, 8, 86-91.

Gerler, E. R. Jr. & Pepperman, C. W. Children's reactions to small group psychological education. Together, 1976, 1, 40-47.

Glidewell, J. & Swallow, C. The prevalence of maladjustment in elementary schools. Chicago: University of Chicago Press, 1968.

Halpin, W. G., Halpin, G. M. & Hartley, D. L. The effects of classroom guidance programs on sociometric status of second grade pupils. Elementary School Guidance & Counseling, 1972, 6, 227-232.

Hawkinson, A. The effect of the HDP on the self-concept of some elementary school children. Unpublished Master's Degree Thesis California State University, Hayward, 1970.

Hershenson, D. B. Life stage vocational development system. Journal of Counseling Psychology, 1968, 15, 23-30.

Howard, W. Jr. & Zimpfer, D. G. The findings of research on group appr aches in elementary guidance and counseling. Elementary School Guidance & Counseling. 1972, 6, 163-169.

Human Development Training Institute, Inc. What is the human development program? La Mesa, Cal.: Author, 1975.

Jackson, W. J. A study of the relationship between a small group discussion activity, the self-concept and reading achievement of selected fourth grade boys and girls. Dissertation Abstracts International, 1973, 5, 2301-A.

Katzenmeyer, W. G. & Stenner, A. J. Administration manual, self observation scales, intermediate level, forms a and b. Durham, N. C.: National Testing Service, Inc., 1974.

Katzenmeyer, W. G. & Stenner, A. J. Self observation scales technical bulletin no. 2, intermediate level (Monograph). Durham, N. C.: National Testing Service, Inc., 1974.

Martorella, P. H. Selected early childhood affective learning programs: An analysis of theories, structure and consistency. Young Children, 1975, 30, 289-301.

McGee, G. A. An eveluation of the effects of the Bessell-Palomares human development program on five year olds in an appalachian head start class. Dissertation Abstracts International, 1972, 32, 4329-A.

McGhee, P. E. & Crandall, V. C. Beliefs in internal-external control of reinforcements and academic peoformance. Child Development, 1968, 39, 91-102.

Messer, S. B. The relation of internal-external control to academic performance. Child Development, 1972, 43, 1456-1462.

Mestler, J. E. Behavioral changes of elementary students involved in the human development program. Dissertation Abstracts International, 1975, 35, 4630-4631-A.

Minteer, E. G. The effect of a structured human development program curriculum on pupil awareness, mastery, and social interaction in grade one. Unpublished Master's Degree Thesis, California State University, Fullerton, California, 1971.

Montgomery, J. L. The effects of awareness training in a modified encounter group on selected aspects of personality with kindergarten children. Dissertation Abstracts International, 1971, 31, 5773-A.

Mosser, M. & Evans, R. The effects of small group interaction of self-esteem and interpersonal relations. Palm Beach, Florida: Palm Beach County Public Schools, 1975.

Nadler, D. Affecting the learning climate through magic circles. Elementary School Guidance & Counseling. 1973, 8, 107-111.

Palomares, U. H. Communication begins with attitude. National Elementary Principal, 1970, 50, 47-49.

Palomares, U. & Lynch, J. Human development training institute "magic circle" videotape: Introduction to H. D. T. I.; Awareness demonstration with elementary students; Discussion/Feedback on elementary demonstration. San Diego, Cal.: Institute for Personal Effectiveness in Children, U.S.O.E. Counselor Education Renewal Training Project for 1970-71.

Palomares, U. H. & Rubini, T. Human development in the classroom. Personnel & Guidance Journal, 1973, 51, 653-657.

Pellegreno, D. D. The elementary school counselor and the affective domain. Elementary School Guidance & Counseling, 1970, 4, 253-259.

Reimanis, G. School performance, intelligence, and locus of reinforcement control scales. Psychology in the Schools, 1973, 10, 207-211.

Rowland, M. K. & Southard, J. Interpersonal effectiveness diagnosis. San Diego, Cal.: Human Development Training Institute, 1973.

Shaw, M. C. & Wursten, R. Research on group procedures in schools: A review of the literature. Personnel & Guidance Journal, 1965, 44, 27-34.

Slauson, M. C. A study of the impact of selected teacher characteristics on the self-concepts of first and second grade pupils within an affective education program. Unpublished doctoral dissertation, University of Alabama, 1975.

Stenner, A. J. & Katzenmeyer, W. G. Administration manual, self observation scales, primary level, forms a and b. Durham, N. C.: National Testing Service, Inc., 1973.

Sweaney, D. R. A study of the effects of an affective curriculum program on the awareness, self-concept, and social interaction of first grade students. Unpublished doctoral dissertation, University of Alabama, 1973.

Treloar, J. H. A computer simulation of the effects of violations of the underlying assumptions of Cattell's coefficient of profile similarity. Unpublished Doctoral Dissertation, University of Alabama, 1969.

Valett, R. E. Affective-humanistic education. Belmont, Cal.: Fearon Publishers, 1974.

Varkoughnett, B. C. & Smith, M. P. Enhancing the self-concept in school. Educational Leadership, 1969, 27, 253-257.

Weinstein, G. & Gantini, M. D. Toward humanistic education: A curriculum of affect. New York: Praeger Publishers, 1970.

Williams J. M. An empirical study of Cattell's coefficient of profile similarity. Unpublished Doctoral Dissertation, University of Alabama, 1969.

Appendices

Appendix A Magic Circle Basic Skills Checklist

Appendix B Teacher Checklist and Evaluation Form

Appendix C Instructions to Students for Writing a Vocational Theme

Appendix D Vocational Dues for Use in the Magic Circle Format

Appendix A

MAGIC CIRCLE BASIC SKILLS CHECKLIST

TEACHER: _____ CUE: _____

DATE: _____ RATER: _____

A. INTRODUCTION OF CUE (skill with which the teacher presents the cue and initiates the Magic Circle activity):

1. Presents cue with clarity and in language pupils comprehend. ____

2. Gives a personal experience or relevant example which shows application of the cue. ____

3. Allows adequate time of thought and consideration of cue before calling for responses. ____

4. Initiates interaction through open-ended question or invitation. ____

B. ATTENDING SKILLS (verbal and non-verbal facilitation and support of pupil contributions):

1. Observes signals that students want to contribute and provides opportunity to communicate. ____

2. Shows non-verbal attentiveness to participating pupil by nodding, smiling, eye contact, posture, gestures, etc. ____

3. Indicates active listening by paraphrasing student response, recalling responses made earlier, etc. ____

4. Permits students to be focus of attention; does not dominate the group. ____

C. FOCUS ON FEELINGS (encourages and emphasizes affectivity):

1. Uncritically accepts all feelings verbalized or displayed. ____

2. Facilitates comprehensive description of feelings by helping participants identify and describe emotional responses. ____

3. Helps refine feeling descriptors and clarify the nature of feelings and their influence on behavior. ____

4. Helps identify reactions of individuals and the group as a unit to the circle activity or expressed content or affect. ____

D. ENCOURAGEMENT (openness to and facilitation of participation):

1. Insures that all who indicate desire to participate have such opportunity. ____

2. Repeats cue periodically and associates contributions with the circle topic. ____

3. Permits appropriate pauses in the group process and is patient in permitting each pupil to present his/her remarks. ____

4. Periodically reviews or requests reviews. ____

(*) Encourages but does not pressure for involvement of reticent children (whisper technique, guessing technique, request for review, etc.) ____

E. RECOGNITION (reinforcement of contributions):

1. Gives recognition by speaking directly to those persons to whom paraphrasing, clarifying, or other communications are addressed and by attending to each person speaking to the group. ____

2. Gives verbal recognition (praise, thanks, appreciation, etc.) for each pupil's remarks and to the group for total participation. ____

3. Verbally reinforces listening and review behaviors of individuals and of the group at large. ____

4. Intimidation and coercion are absent. ____

(*) Deals with disruptors by giving corrective feedback but does not demean the person or reject his/her feelings. ____

F. PROMOTION OF STUDENT INTERACTION (facilitates cross-communication between students and emergence of student leadership):

1. Calls attention to similarities in experiences and feelings expressed by different students. ____

2. Encourages participants to communicate directly with each other and spontaneously react to each other rather than through the group leader. ____

3. Permits and encourages student involvement in decisions concerning Magic Circle planning, including choice of circle activities. ____

4. Permits and encourages assumption of group leadership by students. ____

G. TERMINATION OF CIRCLE (skill with which closure of circle is achieved):

1. Ends circle activity when productive contributions subside or a natural break occurs.

2. Reviews or encourages student review of contributions. ____

3. Summarizes or encourages student summary of topic. ____

4. Terminates circle with reinforcement. ____

Appendix B

Teacher Checklist and Evaluation Form

	VERY GOOD	GOOD	FAIR	POOR	
PUPIL REACTION	4	3	2	1	DATE
TEACHER EVALUATION	4	3	2	1	CUE

	VERY GOOD	GOOD	FAIR	POOR	
PUPIL REACTION	4	3	2	1	DATE
TEACHER EVALUATION	4	3	2	1	CUE

	VERY GOOD	GOOD	FAIR	POOR	
PUPIL REACTION	4	3	2	1	DATE
TEACHER EVALUATION	4	3	2	1	CUE

	VERY GOOD	GOOD	FAIR	POOR	
PUPIL REACTION	4	3	2	1	DATE
TEACHER EVALUATION	4	3	2	1	CUE

	VERY GOOD	GOOD	FAIR	POOR	
PUPIL REACTION	4	3	2	1	DATE
TEACHER EVALUATION	4	3	2	1	CUE

Appendix C

INSTRUCTIONS TO STUDENTS FOR WRITING A SHORT THEME ON WHAT THEY WILL BE WHEN THEY GROW UP

"Today we are going to try to see ourselves as we will be when we get older. Imagine yourself as grown-up, out of school, and working. Try to see as much as you can about this job as if you are really there. See what the job is and what you do when you are working. Think about this job for a while now (pause). Now, open your eyes, write your name and the title, "What My Job Will Be When I Grow Up," on the paper I have given you (write on board). Then, write about the job you imagined."

Appendix D

VOCATIONAL CUES FOR USE IN THE

MAGIC CIRCLE FORMAT

1. Something that I do that is fun that takes a lot of energy.
2. Something that I do that is fun that does not take much energy.
3. A job that I have which is work but still is lot of fun to do.
4. A job that I have which is work and which is not fun for me to do.
5. A job that my father has around the house that he likes to do.(doesn't like).
6. A job that my mother has around the house that she likes to do.(and doesn't).
7. A job that I have around the house.
8. What my father (uncle, brother) does at his job.
9. What my mother does at her job.
10. Something that my father really likes about his job.
11. Something that my father really doesn't like about his job.
12. Something my mother likes about her job.
13. Something my mother dislikes about her job.
14. A job that I think I would like when I do go to work.
15. A job that I think I wouldn't like when I do go to work.